LG TRAINING CENTER

1080P
Direct View LCD

LG
Life's Good

42LH40 Direct View LCD

OUTLINE

Section 1

Contact Information, Preliminary Matters, Specifications,
LCD Overview, General Troubleshooting Steps,
Signal Distribution, Disassembly Instructions and Voltages

Section 2

Circuit Board Operation, Troubleshooting of :

- Switch mode Power Supply/Ballast Combination
- Main Board
- Ft Control Board
- Side Keys

42LH40 LCD Direct View Display

Section 1

This Section will cover Contact Information and remind the Technician of Important Safety Precautions for the Customers Safety as well as the Technician and the Equipment.

Basic Troubleshooting Techniques which can save time and money sometimes can be overlooked. These techniques will also be presented.

This Section will get the Technician familiar with the Disassembly, Identification and Layout of the LCD Display Panel.

At the end of this Section the Technician should be able to Identify the Circuit Boards and have the ability and knowledge necessary to safely remove and replace any Circuit Board or Assembly.

IMPORTANT SAFETY NOTICE

The information in this training manual is intended for use by persons possessing an adequate background in electrical equipment, electronic devices, and mechanical systems. In any attempt to repair a major Product, personal injury and property damage can result. The manufacturer or seller maintains no liability for the interpretation of this information, nor can it assume any liability in conjunction with its use. When servicing this product, under no circumstances should the original design be modified or altered without permission from LG Electronics. Unauthorized modifications will not only void the warranty, but may lead to property damage or user injury. If wires, screws, clips, straps, nuts, or washers used to complete a ground path are removed for service, they must be returned to their original positions and properly fastened.

CAUTION

To avoid personal injury, disconnect the power before servicing this product. If electrical power is required for diagnosis or test purposes, disconnect the power immediately after performing the necessary checks. Also be aware that many household products present a weight hazard. At least two people should be involved in the installation or servicing of such devices. Failure to consider the weight of an product could result in physical injury.

ESD Notice (Electrostatic Static Discharge)

Today's sophisticated electronics are electrostatic discharge (ESD) sensitive. ESD can weaken or damage the electronics in a manner that renders them inoperative or reduces the time until their next failure. Connect an ESD wrist strap to a ground connection point or unpainted metal in the product. Alternatively, you can touch your finger repeatedly to a ground connection point or unpainted metal in the product. Before removing a replacement part from its package, touch the anti-static bag to a ground connection point or unpainted metal in the product. Handle the electronic control assembly by its edges only. When repackaging a failed electronic control assembly in an anti-static bag, observe these same precautions.

Regulatory Information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna; Increase the separation between the equipment and the receiver; Connect the equipment to an outlet on a different circuit than that to which the receiver is connected; or consult the dealer or an experienced radio/TV technician for help.

Contact Information

Customer Service (and Part Sales)	**(800) 243-0000**
Technical Support (and Part Sales)	**(800) 847-7597**
USA Website (GCSC)	**aic.lgservice.com**
Customer Service Website	**us.lgservice.com**
LG CS Academy	**lgcsacademy.com**
LG Web Training	**lge.webex.com**

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201 James Record Road,
Huntsville, AL, 35813.

Safety and Handling Regulations

1. Approximately 20 minute pre-run time is required before any adjustments are performed.
2. Refer to the Voltage Sticker on the Switch Mode Power Supply silk screening. (+/- ½ volt).
3. Be cautious of electric shock from the Backlight section, it uses high voltage AC. Check that the Power Supply and Drive Circuits are completely discharged because of residual current stored before Circuit Board removal.
4. C-MOS circuits are sensitive to static electricity.
   Use caution when dealing with these IC and circuits.
5. Exercise care when making voltage and waveform checks to prevent costly short circuits from damaging the unit.
6. Be cautious of lost screws and other metal objects to prevent a possible short in the circuitry.

Checking Points to be Considered

1. Check the appearance of the Replacement Panel and Circuit Boards for both physical damage and part number accuracy.
2. Check the model label. Verify model names and board model matches.
3. Check details of defective condition and history. Example: Oscillator failure dead set, etc…

Basic Troubleshooting Steps

Define, Localize, Isolate and Correct

•**Define** Look at the symptom carefully and determine what circuits could be causing the failure. Use your senses Sight, Smell, Touch and Hearing. Look for burned parts and check for possible overheated components. Capacitors will sometimes leak dielectric material and give off a distinct odor. Frequency of power supplies will change with the load, or listen for relay closing etc. Observation of the front Power LED may give some clues.

•**Localize** After carefully checking the symptom and determining the circuits to be checked and after giving a thorough examination using your senses the first check should always be the DC Supply Voltages to those circuits under test. Always confirm the supplies are not only the proper level but be sure they are noise free. If the supplies are missing check the resistance for possible short circuits.

•**Isolate** To further isolate the failure, check for the proper waveforms with the Oscilloscope to make a final determination of the failure. Look for correct Amplitude Phasing and Timing of the signals also check for the proper Duty Cycle of the signals. Sometimes "glitches" or "road bumps" will be an indication of an imminent failure.

•**Correct** The final step is to correct the problem. Be careful of ESD and make sure to check the DC Supplies for proper levels. Make all necessary adjustments and lastly always perform a Safety AC Leakage Test before returning the product back to the Customer.

42LH40 Product Information

This section of the manual will discuss the specifications of the 42LH40 LCD Direct View Display Panel.

Key Features

- TruMotion 120Hz
- Intelligent Sensor Mode
- Full HD 1080p HD Resolution
- 70,000:1 Dynamic Contrast Ratio
- 2.7ms Response Time (GTG)
- 500 cd/m2 Brightness
- Wide Color Gamut
- Super IPS Panel
- Wide Viewing Angle
- XD Engine®
- 24p Real Cinema
- ISFccc® Ready
- Picture Wizard
- AV Mode II (Cinema, Sports, Game)
- 60,000 Hour Panel Life (typical)
- NTSC/ATSC Tuners with Clear QAM

Panel Pixel Count Explained

FULL HD 1080p RESOLUTION Pixels: 1920 (H) x 1080p (V)

HD RESOLUTION 720p HD Pixels: 1366 (H) × 768 (V)

	FORMATS		Lines Per Field
SD	480I	Interlaced	240 Lines
ED	480P	Progressive	480 Lines
HD	1080I	Interlaced	540 Lines
HD	720P	Progressive	720 Lines
HD	1080P	Progressive	1080 Lines

Possible Frame Rates:
24FPS
30FPS
60FPS

Interlaced
2 Fields to make a Frame

Progressive
Each Field is a Frame

Think of sync as the Panels "Refresh Rate"

BASIC PIXEL COUNT AND LOGOS

HDTV HIGH DEFINITION TELEVISION

720P PANEL
1365 (H) × 768 (V)

FULL HD 1080P

1080P PANEL
1920 (H) x 1080 (V)

Basic Specifications (LOGO Familiarization)

Full HD 1080p Resolution
Displays HDTV programs in full 1920 x 1080p resolution for a more detailed picture.

Remote Control Familiarization

TOP PORTION

BOTTOM PORTION

Accessing the Service Menu

REMOTE BOTTOM PORTION

To access the Service Menu.

1) Turn the Set On
2) Simultaneously, Press and "Hold" the Menu Key on the Side Key pad and Press and "Hold" the Menu Key on the Remote approximately 5 seconds.
3) If Customer's Menu appears, continue to hold until it disappears.
4) The Service Menu appears

SIDE KEYS

Note: If a Password is required to enter the Service Menu. Enter;
0000

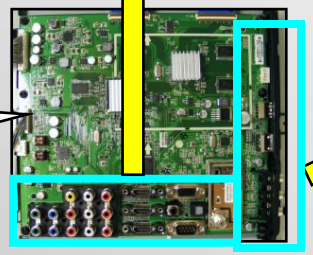
Rear and Side Input Jacks

USB Port
Software Upgrades
Music, Photos

Side In/Out

Rear In/Out Jacks

Rear

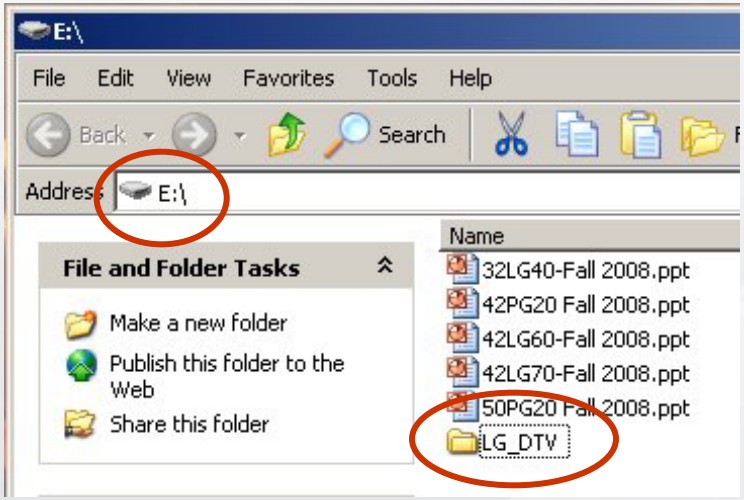


MAIN PWB
Rear and Side
Input/Output locations

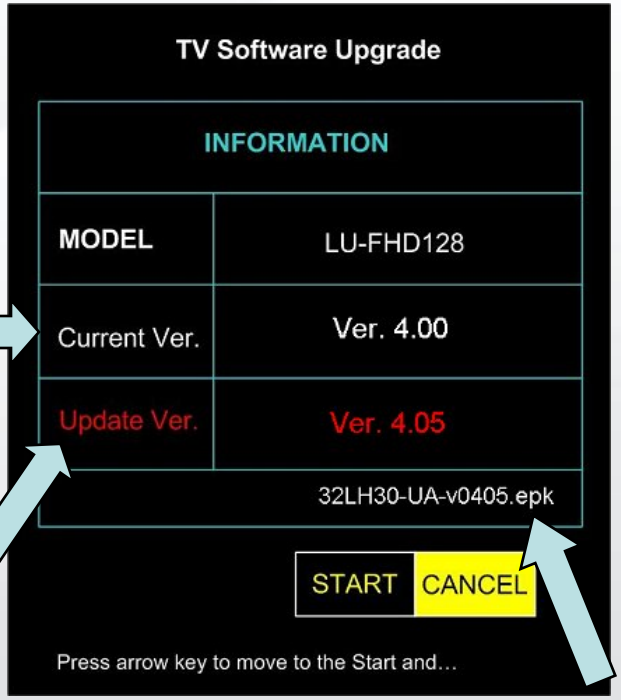
Side

USB DOWNLOAD

1) Create an LG_DTV folder on the USB Flash Drive



2) Copy new software (xxx.epk) to "LG_DTV" folder. Make sure to have correct software file.
3) With TV turned on, insert USB flash drive.
4) You can see the message "TV Software Upgrade" (See figure to right)
5) Cursor left and highlight "START" Button and push "Enter" button using the remote control.
6) You can see the download progress Bar.
7) Do not unplug until unit has automatically restarted.
8) When download is completed, you will see "COMPLETE".
9) Your TV will be restarted automatically.



Shows the Currently Installed Version

Shows the Software Version found on the USB Flash Drive

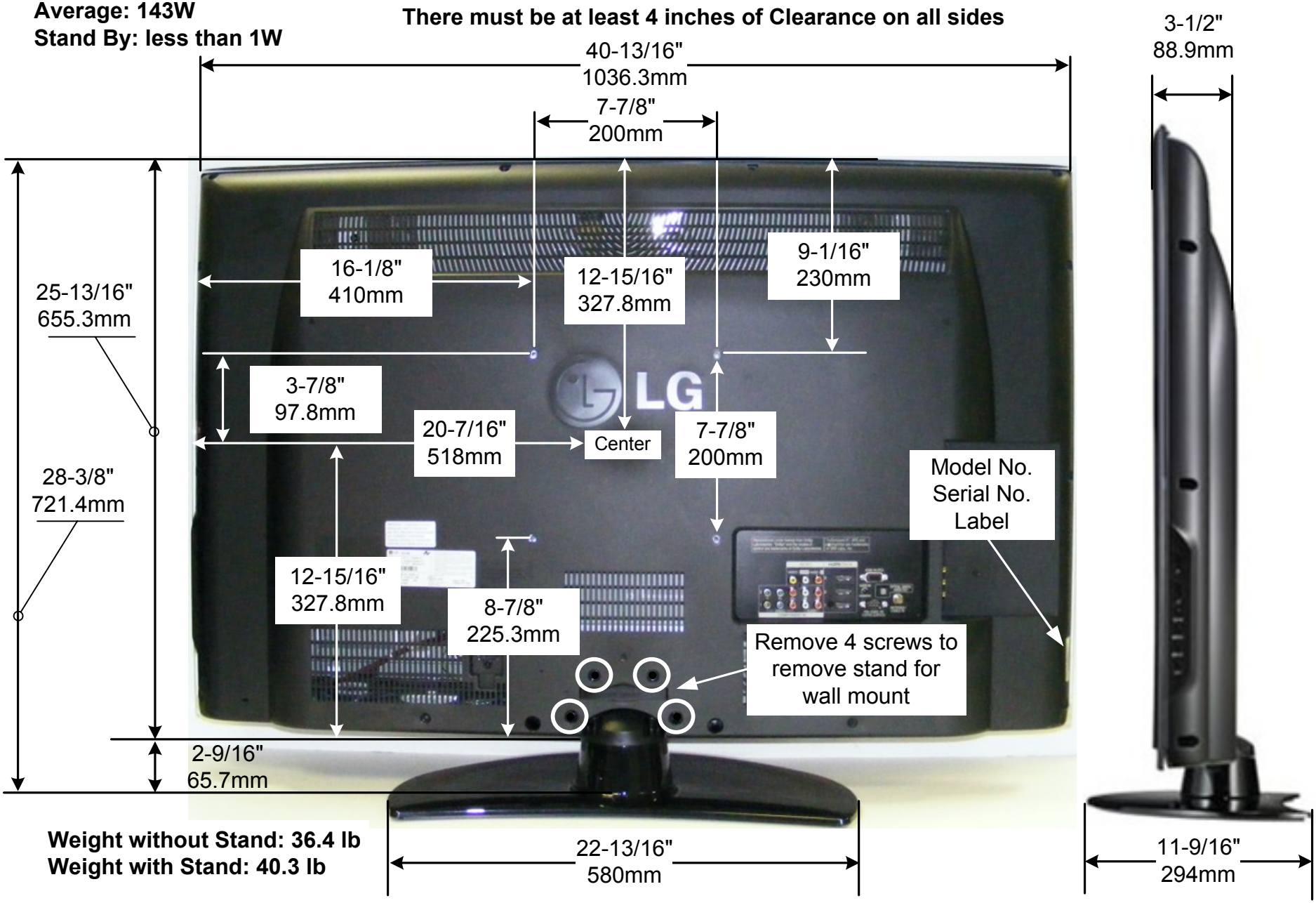
Shows the Software file found on the USB Flash Drive

*** CAUTION:**
Do not remove AC power or the USB Flash Drive.
Do not turn off Power, during the upgrade process.

42LH40 PRODUCT DIMENSIONS

Wattage
Average: 143W
Stand By: less than 1W

There must be at least 4 inches of Clearance on all sides



Weight without Stand: 36.4 lb
Weight with Stand: 40.3 lb

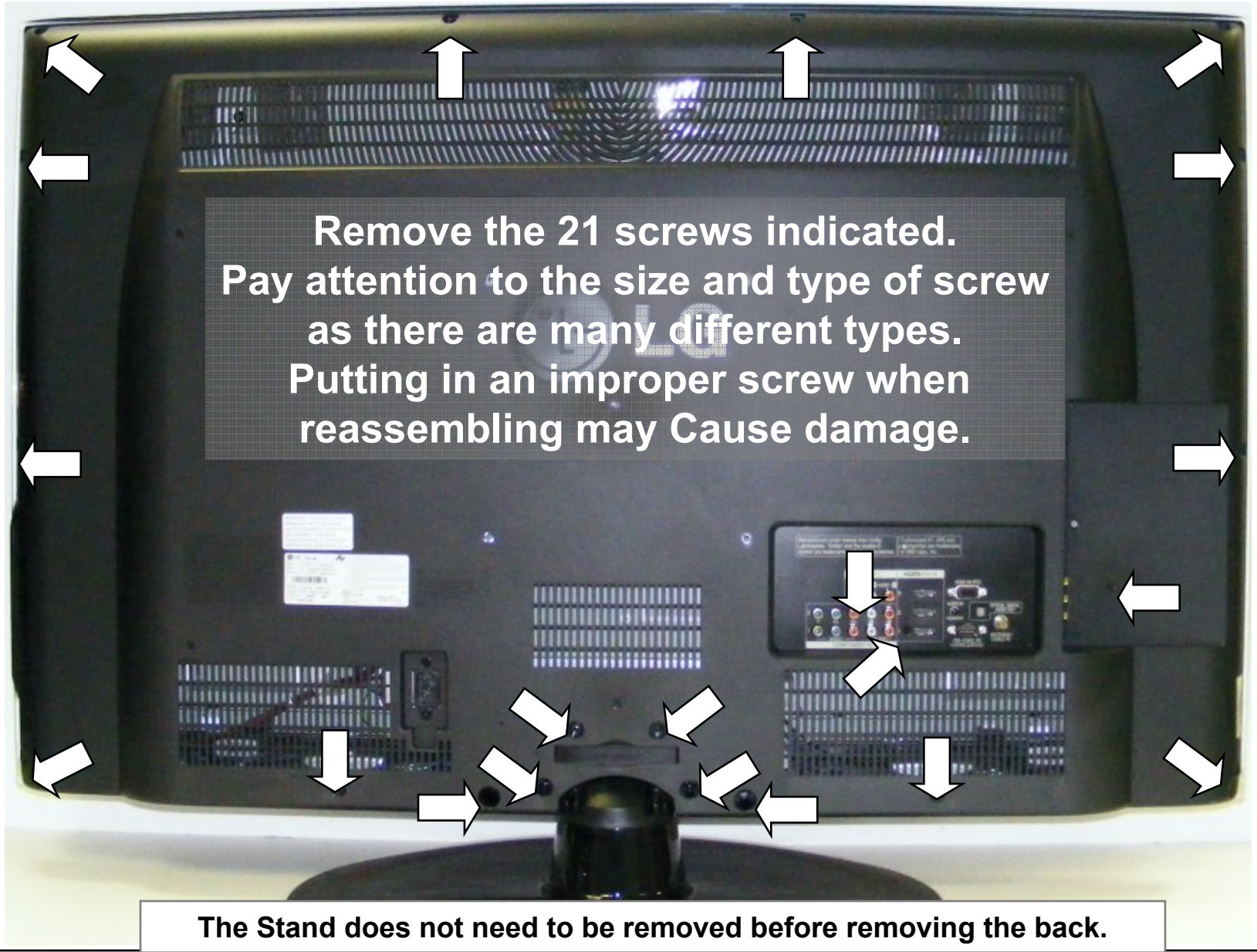
Disassembly:
This section of the manual will discuss Disassembly, Layout and Circuit Board Identification, of the 42LH40 LCD Direct View Television.

Upon completion of this section the Technician will have a better understanding of the disassembly procedures, the layout of the printed circuit boards and be able to identify each board.

Troubleshooting:
This section of the manual will also discuss troubleshooting.

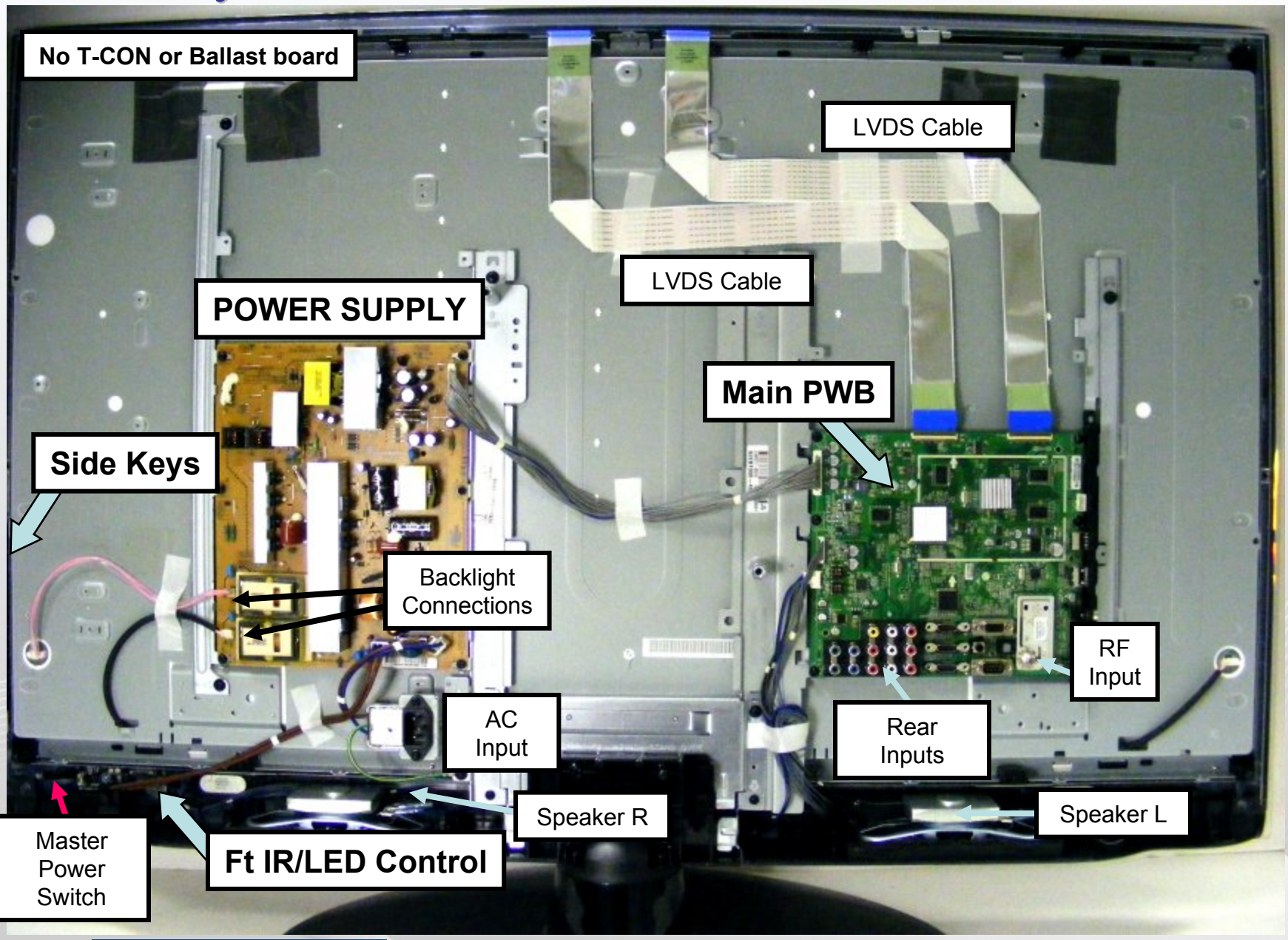
Upon completion of this section the Technician will have a better understanding of how to diagnosis and resolve problems.

Removing the Back Cover


Remove the 21 screws indicated.
Pay attention to the size and type of screw as there are many different types.
Putting in an improper screw when reassembling may Cause damage.

The Stand does not need to be removed before removing the back.

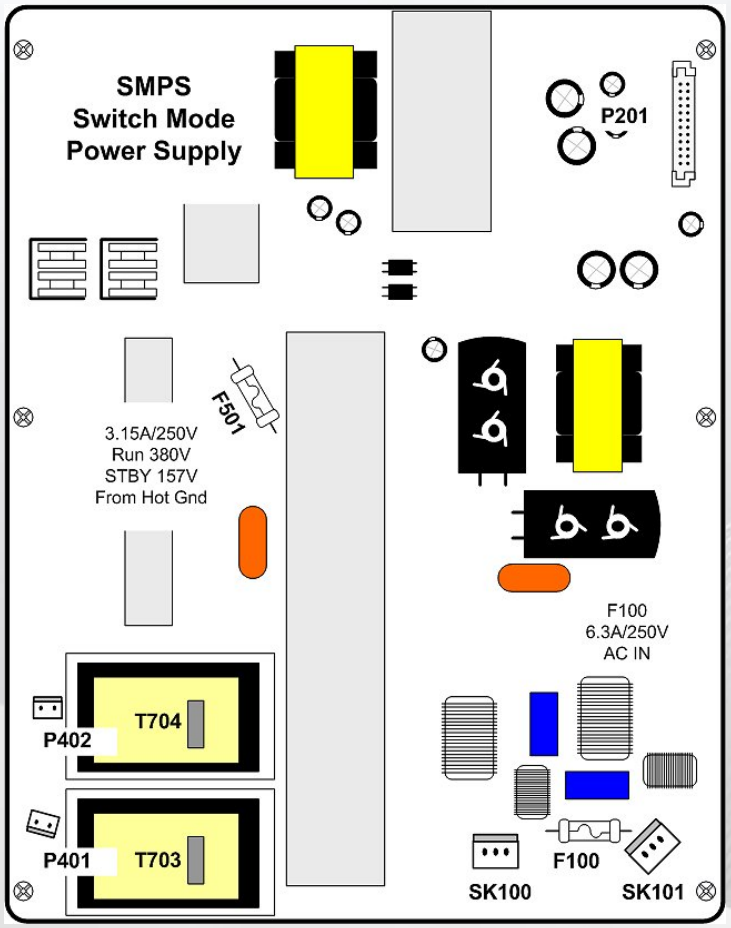
Circuit Board Layout



POWER SUPPLY SECTION

This switch mode power supply has the ballast section built in. The power supply develops Stand By 5V, 12V and 24V for the Main board.

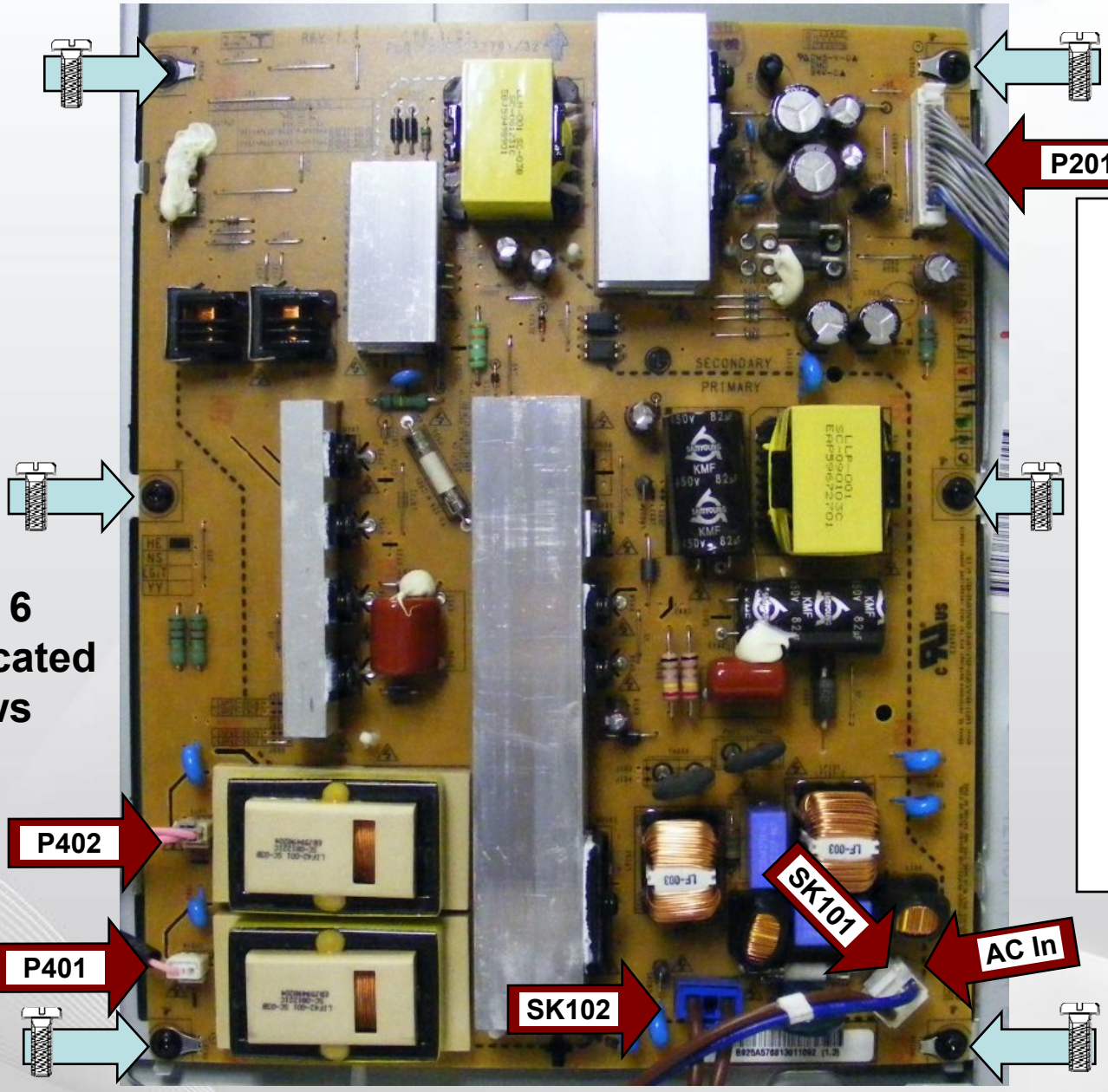
This power supply draws a little less that 1 watt during stand by mode. The fuse F501 reads 157V (from hot ground) during this time. When the controller chip (on the back) receives the PWR-ON command via P201 Pin 19, the primary section increases its current supplying ability. The Primary fuse F501 now reads 380V.
12V is routed out P201 pins 5 and 6 and
24V is routed out P201 pins 1 and 2.
Internally, the power supply also sends B+ (390V) voltage to the Ballast section but it is not turned on at this time.
When the power supply receives the INV-ON command via P201 pin 20, it is routed to the driver for the ballast (on the back of the board). The driver now starts to deliver drive information to the output FETs (on the far left hand heat sink) which in turn switch the primary sides of the two ballast transformers T703 and T704. They output 1.2Kv (48Khz) pulses to the backlights via P401 and P402.



Power Supply PWB Removal

Disconnect P201, P401, P402, AC In SK101 and SK102.

Remove the 6 screws indicated by the arrows w/screw.



P201

Press in Two tabs to release lock

Power Supply (Master Power Switch) Location

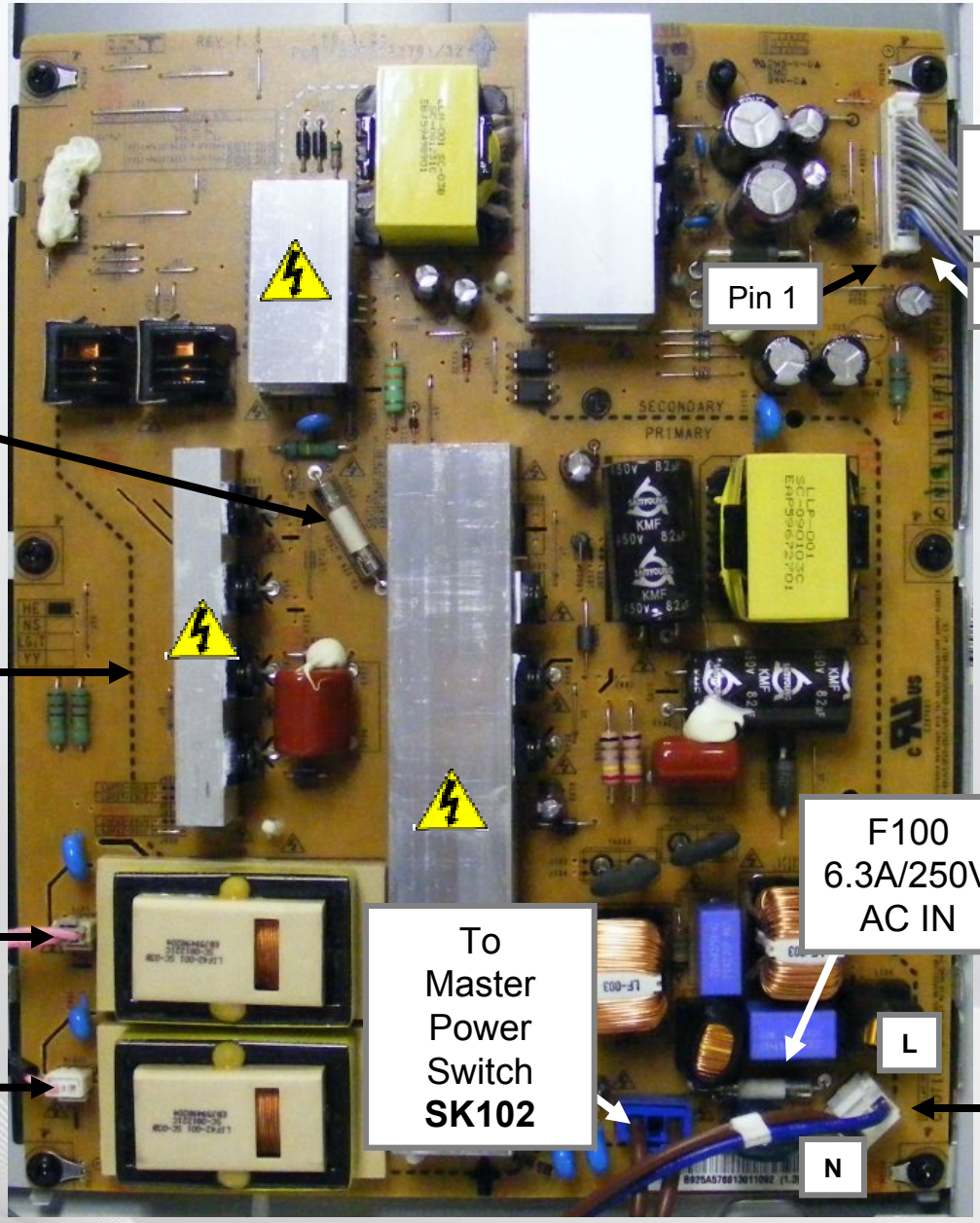
If the TV won't come on, be sure to check the Master Power Switch before assuming a failure has occurred.

MASTER AC SWITCH LOCATION (Bottom Right Side)

Off

On

Power Supply (SMPS) PWB Layout



F501
3.15A/250V
Run 380V
STBY 157V
From Hot Gnd

Components Inside the dashed line is Hot Gnd

To Backlights Left P402

To Backlights Left P401

To Master Power Switch **SK102**

To Main **P201**

Pin 1

Pin 2

Hot Ground Shock Hazard

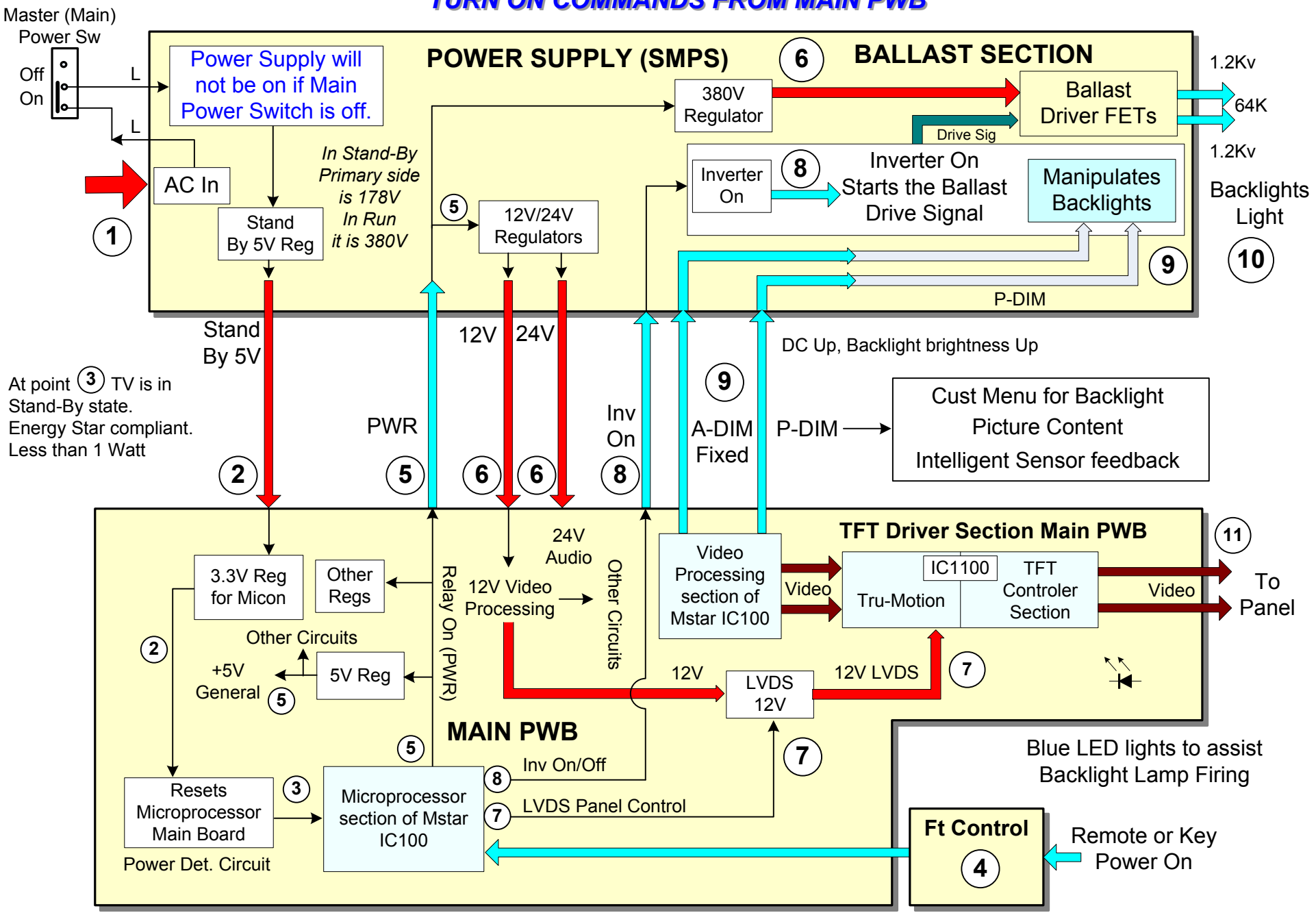
F100
6.3A/250V
AC IN

L

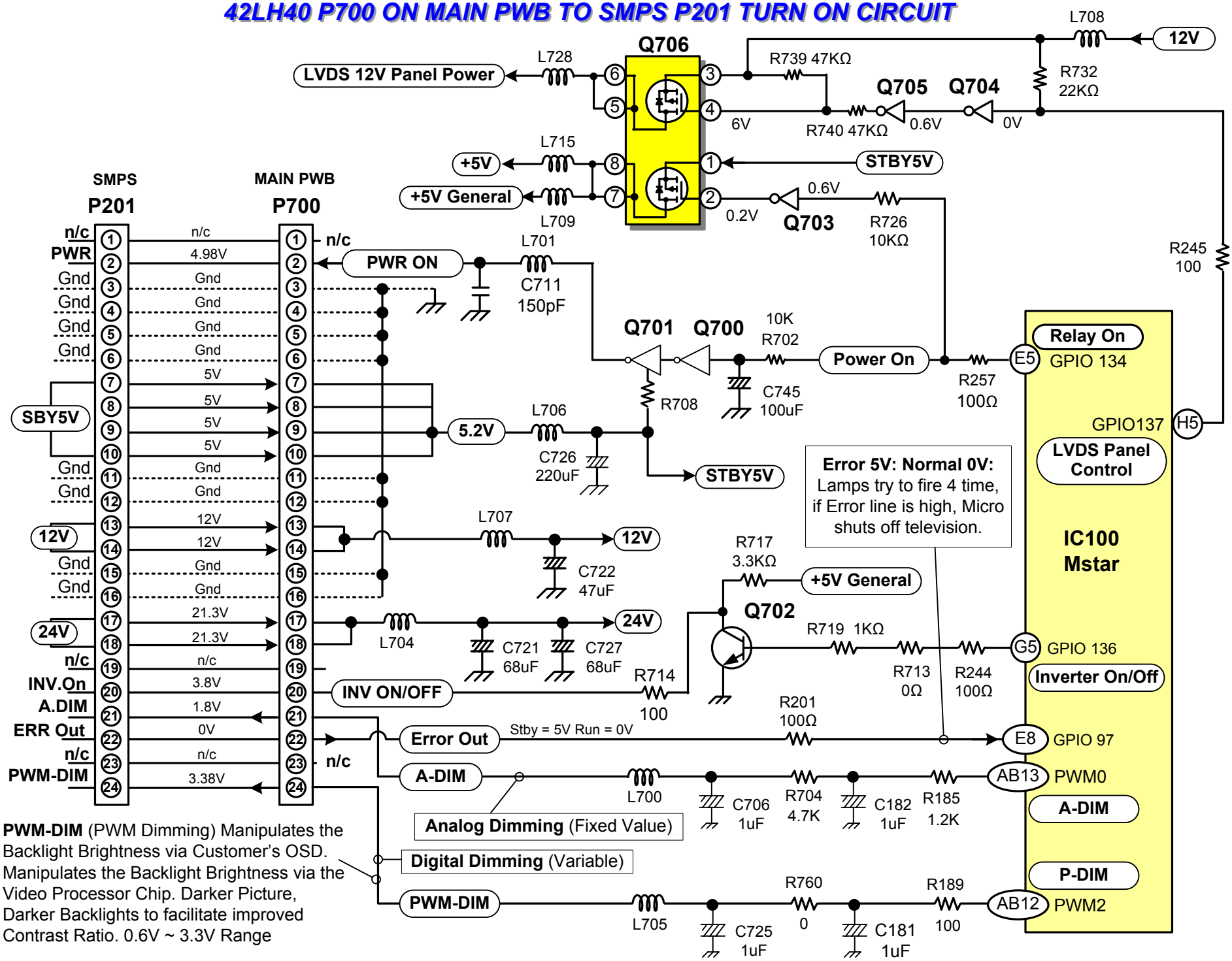
N

AC IN SK101

42LH40 POWER SUPPLY
TURN ON COMMANDS FROM MAIN PWB



42LH40 P700 ON MAIN PWB TO SMPS P201 TURN ON CIRCUIT



PWM-DIM (PWM Dimming) Manipulates the Backlight Brightness via Customer's OSD. Manipulates the Backlight Brightness via the Video Processor Chip. Darker Picture, Darker Backlights to facilitate improved Contrast Ratio. 0.6V ~ 3.3V Range

TEST 1 Power Supply PWB Low Voltage Test

AC Should not be applied at any time while adding resistors or while unplugging connectors as damage to the circuit PWB may occur.

a) The SMPS PWB "MUST" be producing STBY 5V on either pin 7, 8, 9 or 10 (5V).

If 5V Standby is not being generated, the SMPS PWB is defective and must be replaced. There is no need to continue with the next test.

(b) Unplug P700 on the Main PWB.

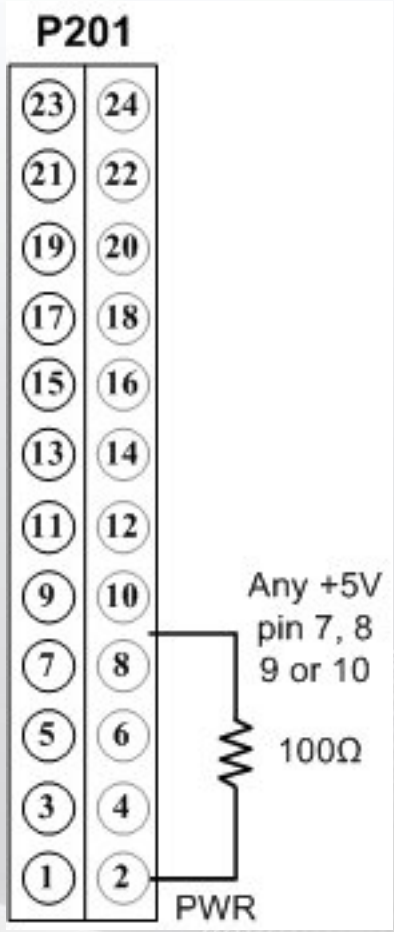
TEST 1:

(1) Add a 100Ω resistor between (5V STBY) pin 7, 8, 9 or 10 and Pin 2 (PWR). Apply AC. This will turn on the power supply.

a) **Check that the 24V and 12V power supplies are turned on,**

- **P201 (24V pins 17 and 18)**
- **P201 (12V pins 13 and 14)**

(2) Remove AC power.



Use P700 Side to insert resistors

TEST 2 Power Supply PWB Backlights Test

P700 Connector disconnected from the Main PWB. Apply AC after adding jumper.

Continue if the 1st test was OK. Leave original resistor in place.

(3) Add another 100Ω resistor between (5V) pin 7, 8, 9 or 10 and Pin 20 (INV On).

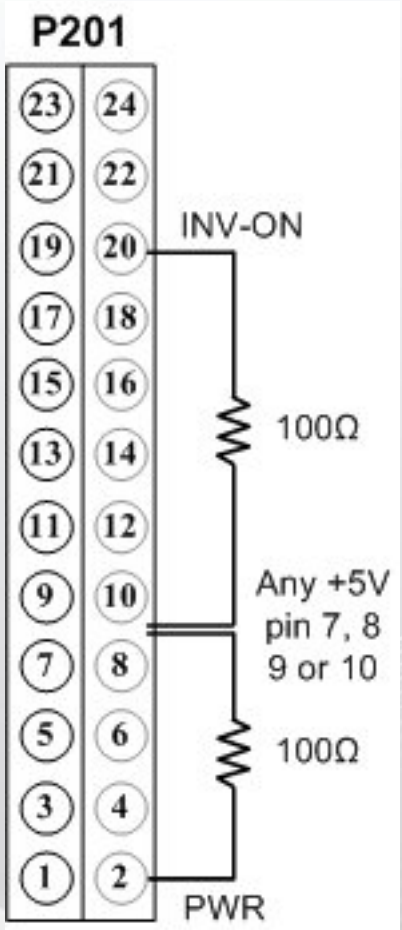
(4) Apply AC Power. Simulating a Power and Backlight On command.

Backlights Normal:
a) If normal, the backlights should turn on. SMPS OK.

Backlights Abnormal:
a) Recheck all connections.
b) Confirm the INV On/Off line pulling up to at least 3V.

REMOVE AC POWER:
c) Check the connections to the Backlights.
DO NOT check these when AC is applied as they carry 1.2Kv each.

Note, either of the connections are unplugged, the backlights will not light.

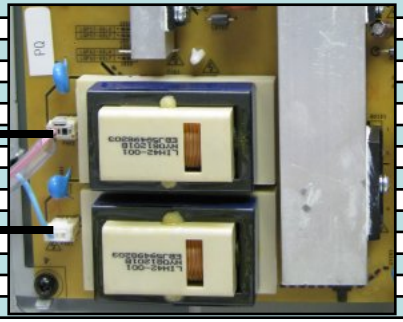


Use P700 Side to insert resistors

General Backlight Information

To Backlights
Over 1.2KV

Ballast Section of SMPS



To Backlights
Over 1.2KV

Currently, number of lamps “Unknown”

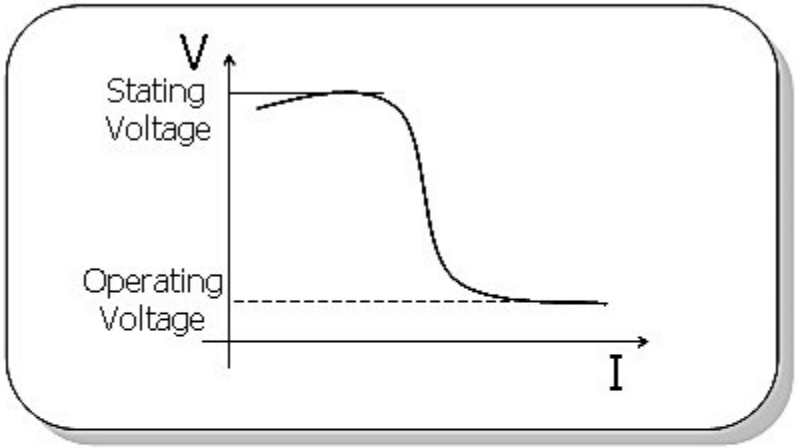
EEFL (External Electrode Fluorescent Lamp)

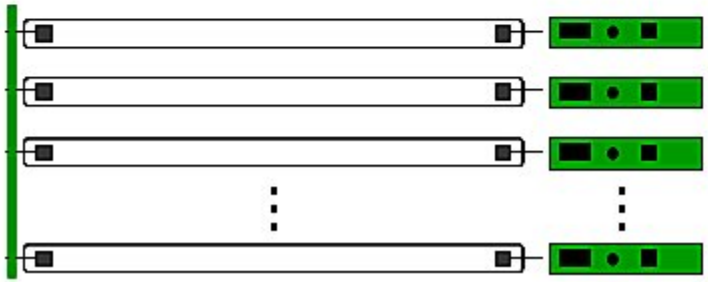
LOW COST Large number of lamps driven by a single inverter

Introducing EEFL

Simple structure, Low price

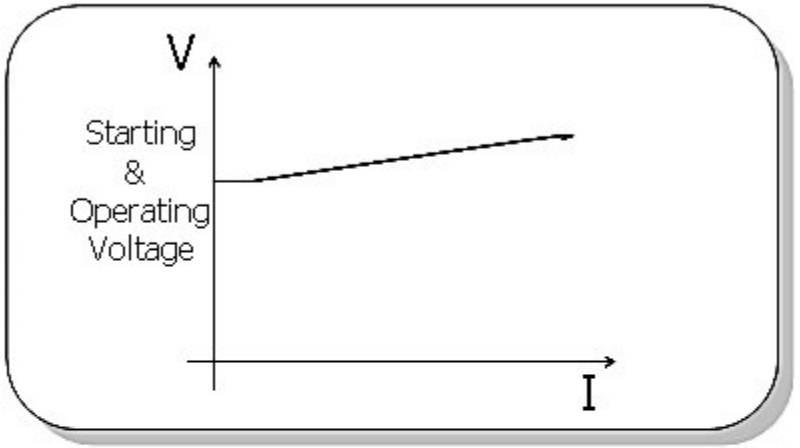
CCFL (Cold Cathode Fluorescent Lamp)

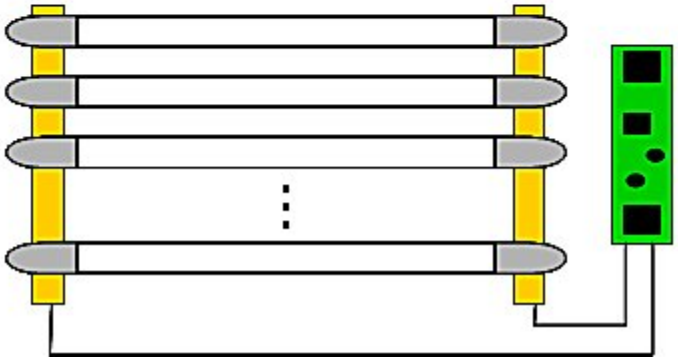




Complicated structure

EEFL (External Electrode Fluorescent Lamp)





Simple structure

Lamp manufacturing process
Lamp assembly structure

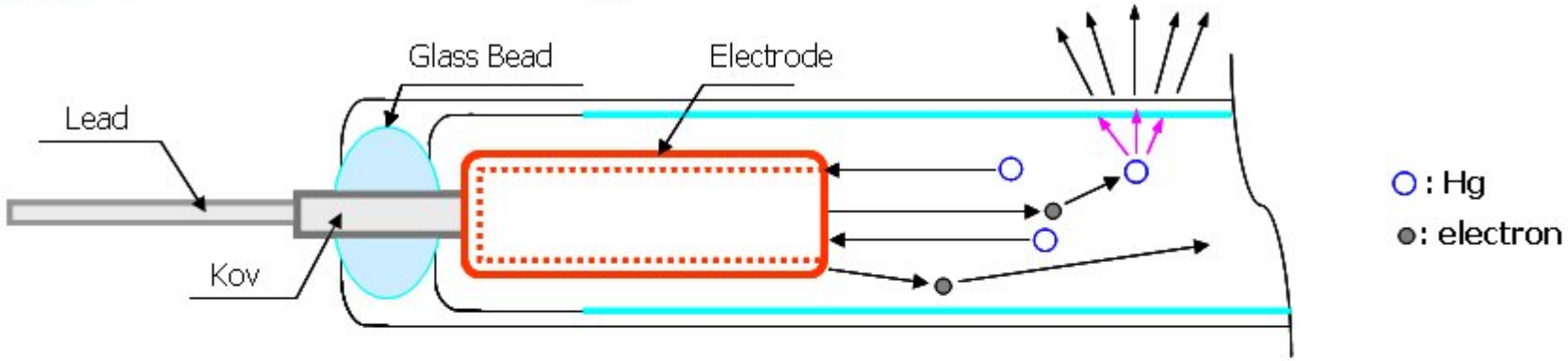
Low Cost

Large number of Lamp
Drive by single inverter

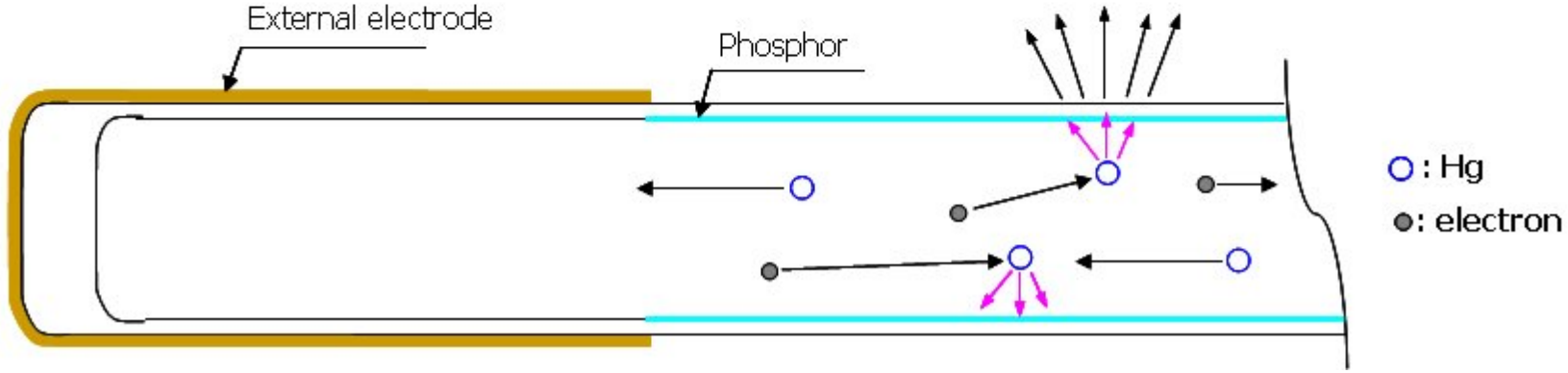
Introducing EEFL Contacts (Bulb Design)

Key: Long Life Time

CCFL (Cold Cathode Fluorescent Lamp)



EEFL (External Electrode Fluorescent Lamp)

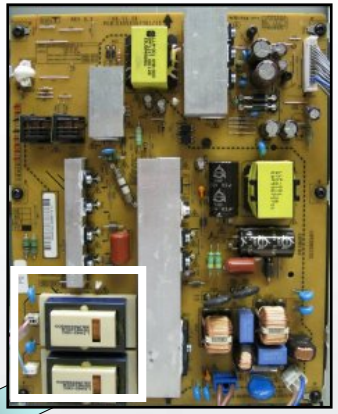


- **For CCFL, Hg gas is consumed mainly near the internal electrode**
- **For EEFL, longer life time is expected because there is no internal electrode consuming Hg gas**

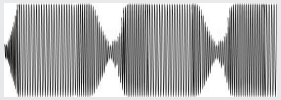
Ballast PWB Layout

Viewed from rear

SMPS PWB



Backlights Test Point Bottom of R406 or R403 38V P/P

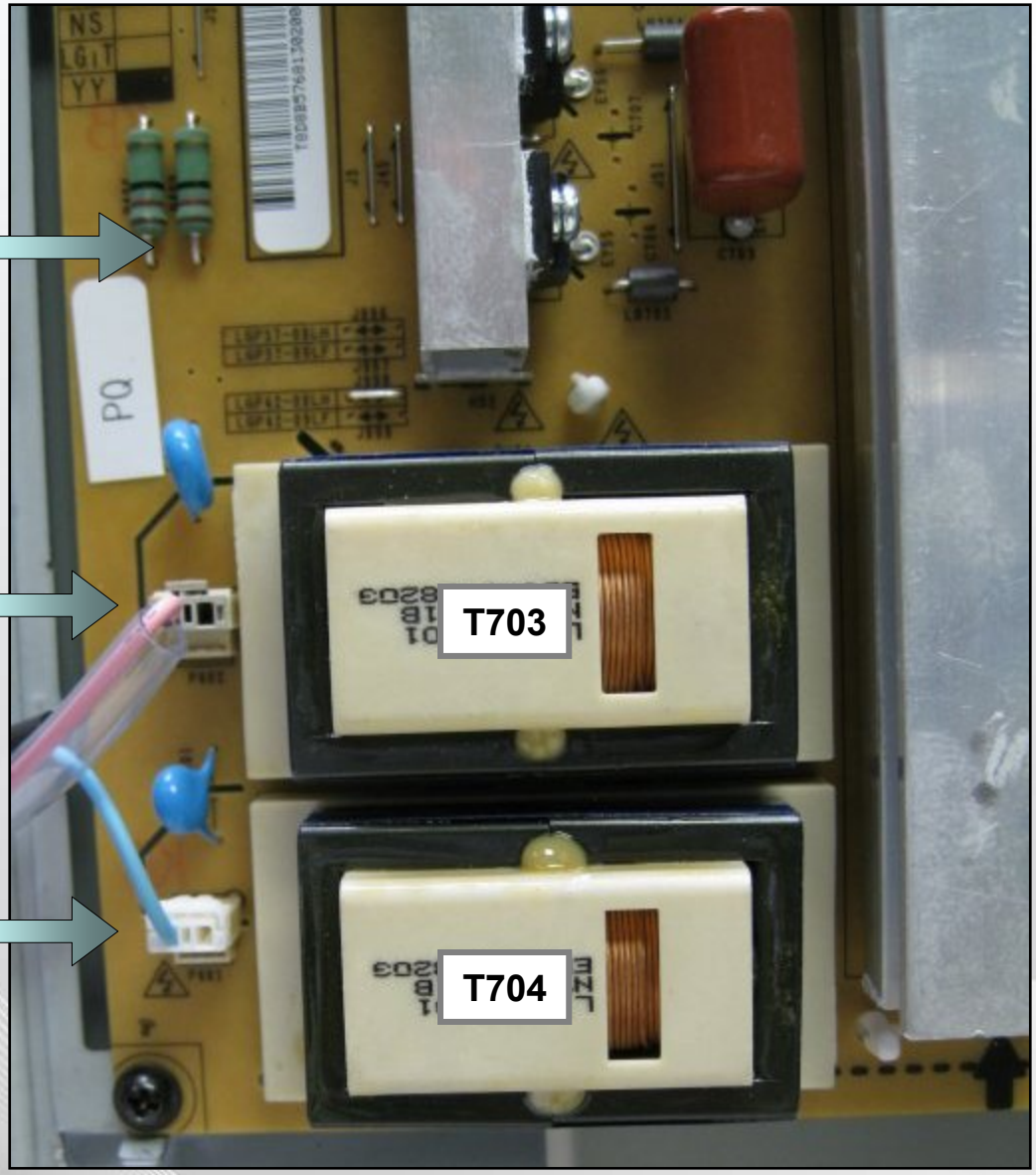


48Khz

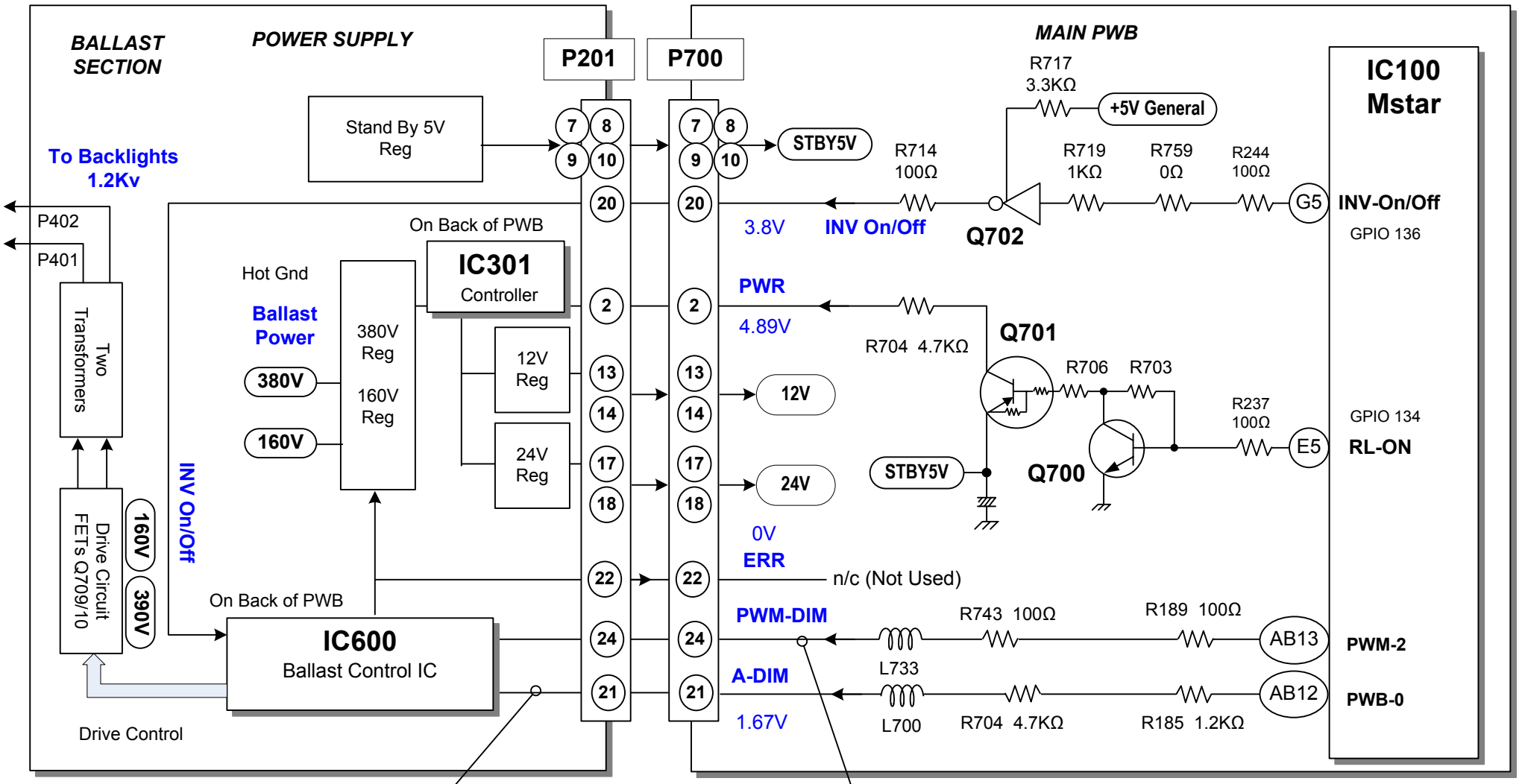
To Backlights Left Side

1.2Kv

To Backlights Right Side



42LH40 P700 on Main PWB To Power Supply P201
Ballast Turn On Circuit



VBR-A (Analog Dimming)
This line is not used.

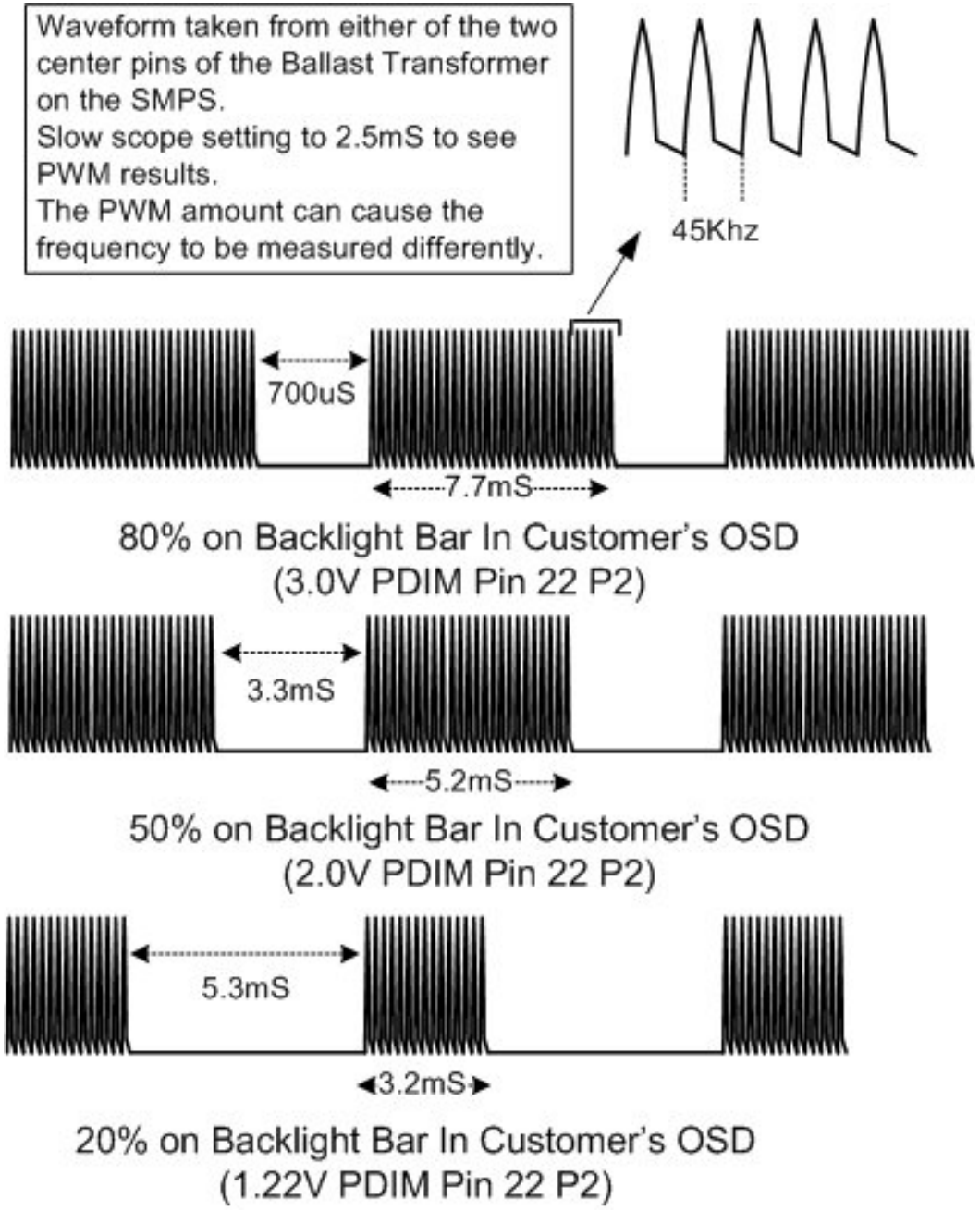
VBR-B (PWM Dimming) Manipulates the Backlight Brightness via Customer's OSD.
Manipulates the Backlight Brightness via the BCM Chip. Darker Picture, Darker Backlights to facilitate improved Contrast Ratio. 0.6V ~ 3.3V Range

Power Supply Backlight Drive Signal Effects

PWMDIM manipulates the Burst Triangle Oscillator in the ballast drive IC.

ADIM also manipulates the Burst Triangle Oscillator But it is not used.

Waveform taken from either of the two center pins of the Ballast Transformer on the SMPS.
Slow scope setting to 2.5mS to see PWM results.
The PWM amount can cause the frequency to be measured differently.



Note:
Backlights will attempt to fire 4 time. During these attempts, the Error line will change from 5V to 0V.

0V when lamp tries to fire or is lit.
5V when the lamps are not lit.

After 4 attempts, if the Error Out line returns to 5V, this tells the Micro to turn the set off.

Power Supply Connector P201 Voltage and Resistance

P201 Odd "SMPS" to P700 "Main PWB"

Pin	Label	STBY	Run	Diode Check
23	nc	nc	nc	nc
21	[1]A.DIM	0V	1.66V	Open
19	nc	nc	nc	nc
17	24V	0V	21.4V	0.81V
15	Gnd	Gnd	Gnd	Gnd
13	12V	0V	12.3V	1.2V
11	Gnd	Gnd	Gnd	Gnd
9	5V	5.14V	5.14V	2.85V
7	5V	5.14V	5.14V	2.85V
5	Gnd	Gnd	Gnd	Gnd
3	Gnd	Gnd	Gnd	Gnd
1	nc	nc	nc	nc

[1]ADIM Pin 21 Fixed and not used

P201 Even "SMPS" to P700 "Main PWB"

Pin	Label	STBY	Run	Diode Check
24	[2]PDIM	0V	3.2V	Open
22	Err Out	0V	0V	Open
20	INV.ON	0V	3.8V	2.25V
18	24V	0V	21.4V	0.81V
16	Gnd	Gnd	Gnd	Gnd
14	12V	0V	12.3V	1.2V
12	Gnd	Gnd	Gnd	Gnd
10	5V	5.14V	5.14V	2.85V
8	5V	5.14V	5.14V	2.85V
6	Gnd	Gnd	Gnd	Gnd
4	Gnd	Gnd	Gnd	Gnd
2	PWR-ON	0V	4.98V	1.19V

[2]PDIM Pin 24 can vary according to type of signal being processed and the OSD Backlight setting. 0.6V 0% to 3.3V 100%. Output from the Video Processor IC100.

Diode Mode values taken with all Connectors Removed

Power Supply Connector SK100 and SK101 Voltage and Resistance

Diode Mode values taken with all Connectors Removed

SK100 "SMPS" to AC IN

Pin	Label	STBY	Run	Diode Check
1	L	120Vac		OL
2	N			OL

AC Voltage Readings Across Pins 1 and 2 for STBY and RUN.

SK101 "SMPS" to MASTER POWER SWITCH

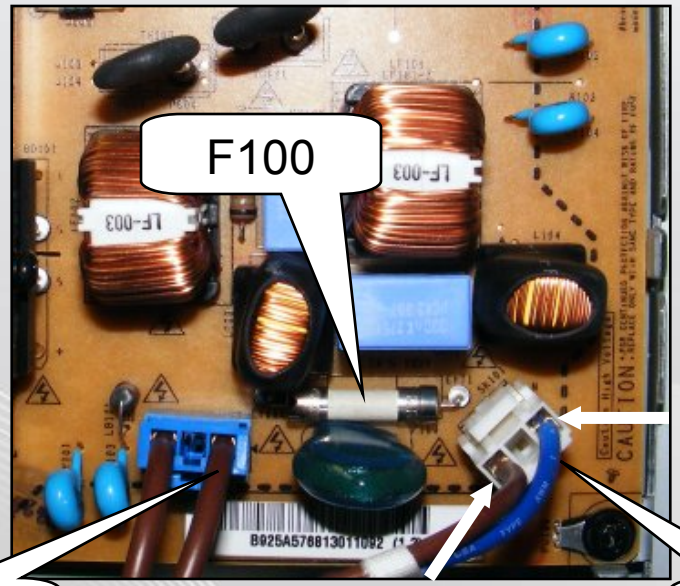
Pin	Label	STBY	Run	Diode Check
1	n/a	120Vac		OL
2	n/a			OL

AC Voltage Readings for either pin 1 or pin 2 in STBY and RUN with one lead on Neutral of SK100.

With the Master Power Switch Closed (On) AC flows.
When Open (Off) AC open and does not flow.

F100
6.3A/250V
AC IN

Bottom Right of SMPS



MAIN PWB SECTION

The Main PWB also contains the T-CON (TFT Driver) section. This set does not use a normal T-CON board.
There are two LVDS cable feeds that go directly to the Panel. These carry the TruMotion 120Hz duel 12 bit LVDS, (video signal) that has already been prepared for the panel drivers.

The Main board receives its operational B+ from the Power Supply via P700.

STAND-BY
- **STBY 5V pins 7~10**

RUN
- **12V pins 13 and 14**
- **24V pins 17 and 18.**

The Main board also develops several B+ sources on the board.

LVDS
- **VCC-LCM+3.3V,**
- **VDD-LCM+16V,**
- **VGH+24V**
- **VGHM+24V**
- **VGL-5V**

AUDIO
- **3.3V**
- **1.8V**

Mstar IC100 (Video) / MICROPROCESSOR
- **1.2V, 1.26V, 1.8V, and 3.3V**

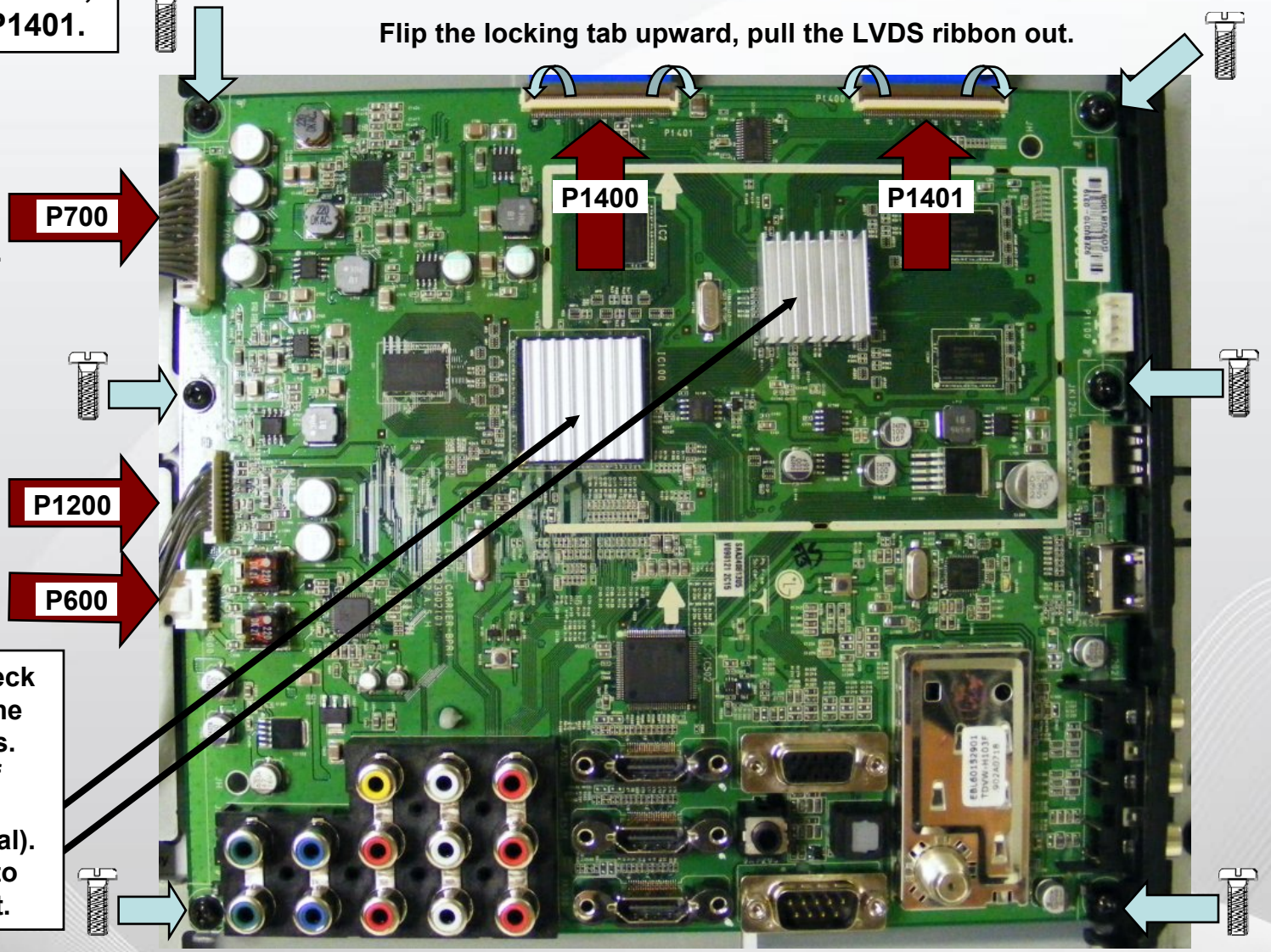
TUNER and VSB CIRCUIT
- **9V which is used to make 5V TU**
- **5V**
- **3.3V**
- **1.2V**

Removing the Main PWB

Remove any tape holding down any cables.
Remove the 6 screws indicated by the arrows.

Disconnect P700, P1204, P600, P1400 and P1401.

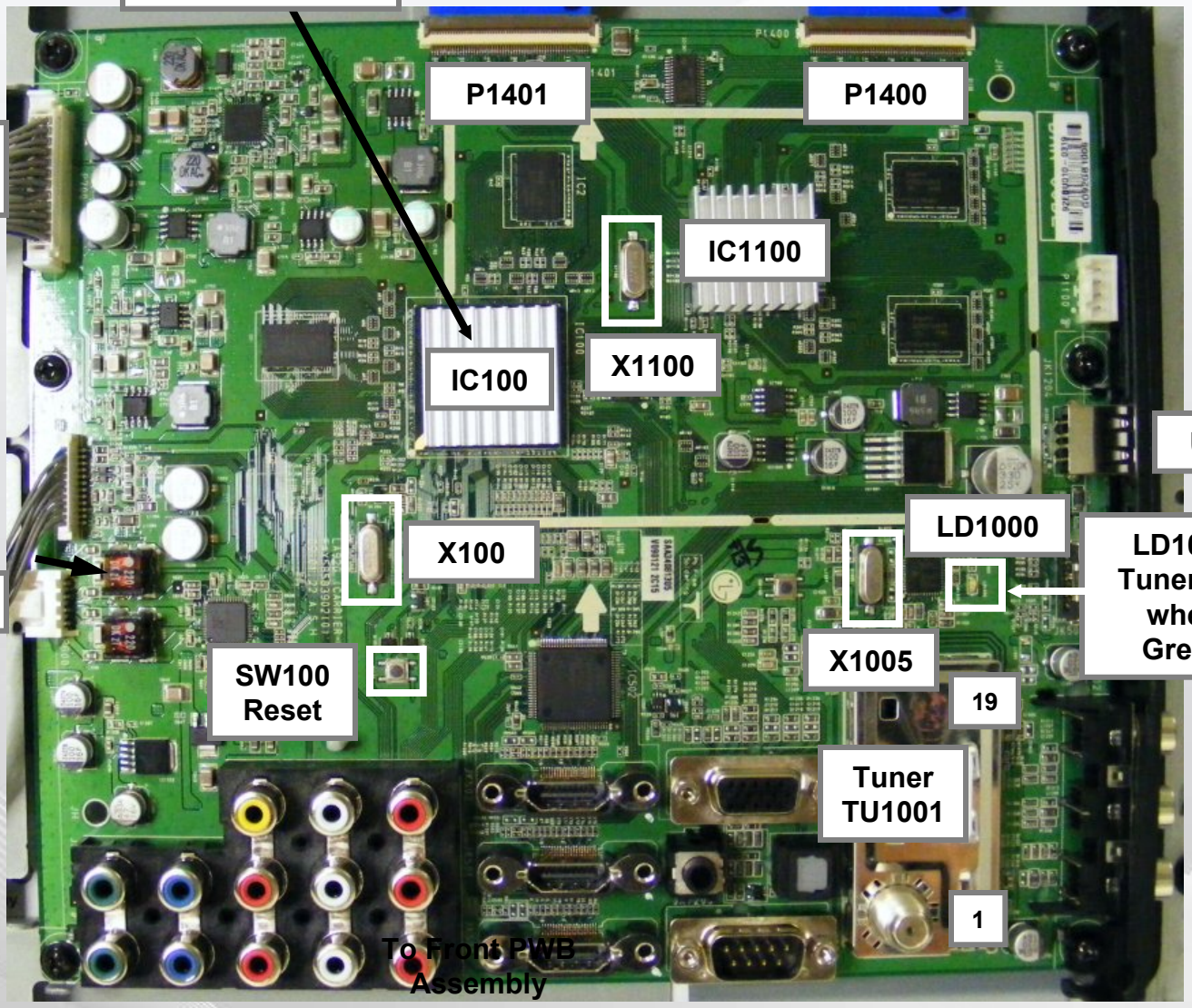
Flip the locking tab upward, pull the LVDS ribbon out.



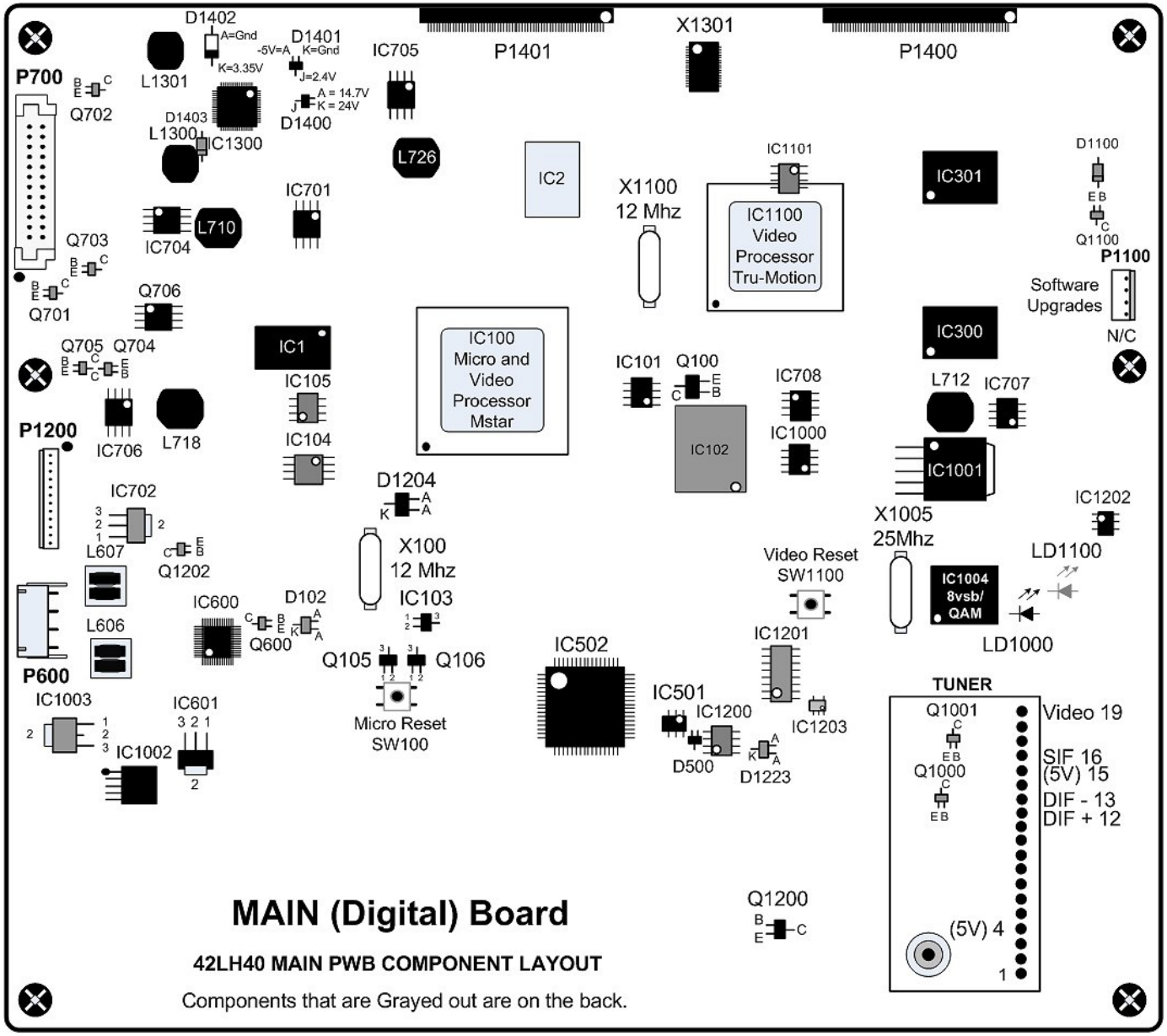
Press in on the top and bottom release tabs to remove P700.

NOTE: Be sure to check on top and behind the Video Processor ICs. Look for a piece of Chocolate (Heat Transfer Material). Be sure to transfer to new PWB if present.

Main PWB Layout

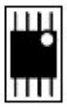


Main PWB (Front Side) Component Locations



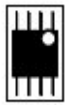
Main PWB (Front Side) Component Voltages

IC701 1.8V DDR



Pin	
[1]	n/c
[2]	3.2V
[3]	3.2V
[4]	n/c
[5]	n/c
[6]	1.8V
[7]	0.79V
[8]	Gnd

IC705 3.3V / 1.26V

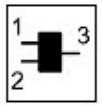


Pin	
[1]	0.8V
[2]	Gnd
[3]	5V
[4]	6.12V
[5]	4.99V
[6]	1.3V
[7]	1.3V
[8]	3.19V

IC101 Flash Boot

Pin	Memory
[1]	0V
[2]	3.2V
[3]	2.5V
[4]	Gnd
[5]	0V
[6]	0V
[7]	3.2V
[8]	3.2V

IC103 Reset



Pin	
[1]	Gnd
[2]	0V
[3]	3.3V

IC707 5V EXT

Pin	1.8V MEMC
[1]	0.8V
[2]	0V
[3]	4.9V
[4]	6.5V
[5]	4.84V
[6]	1.8V
[7]	1.8V
[8]	4.83V

IC1001 3.3V FE

Pin	
[1]	4.9V
[2]	4.9V
[3]	Gnd
[4]	3.36V
[5]	1.19V

IC704 3.3V Reg

Pin	
[1]	0.79V
[2]	Gnd
[3]	5V
[4]	7.7V
[5]	4.9V
[6]	3.3V
[7]	3.3V
[8]	2.1V

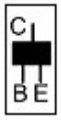
Q706 5V General

Pin	LVDS 12V
[1]	5.1V
[2]	Gnd
[3]	12V
[4]	0.67V
[5]	12V
[6]	12V
[7]	5V
[8]	5V

IC708 3.3V Reg

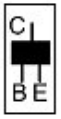
Pin	
[1]	Gnd
[2]	0.79V
[3]	1.26V
[4]	1.26V
[5]	1.8V
[6]	5V
[7]	0V
[8]	5V

Q105 Power On



Pin	Delay
E	Gnd
B	0V
C	1.96V

Q106 Reset



Pin	
E	Gnd
B	0V
C	3.3V

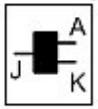
IC601 1.8V Amp

Pin	
[1]	Gnd
[2]	1.8V
[3]	3.3V

IC1000 Flash Boot

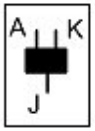
Pin	Memory
[1]	0V
[2]	3.36V
[3]	3.36V
[4]	n/c
[5]	n/c
[6]	1.19V
[7]	0.79V
[8]	Gnd

D1400 LVDS 16V



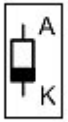
Pin	Source
A	14.7V
J	20V
K	27V

D1401 LVDS (-5V)



Pin	Source
A	(-5V)
J	(-2.38V)
K	Gnd

D1402 LVDS 3.3V

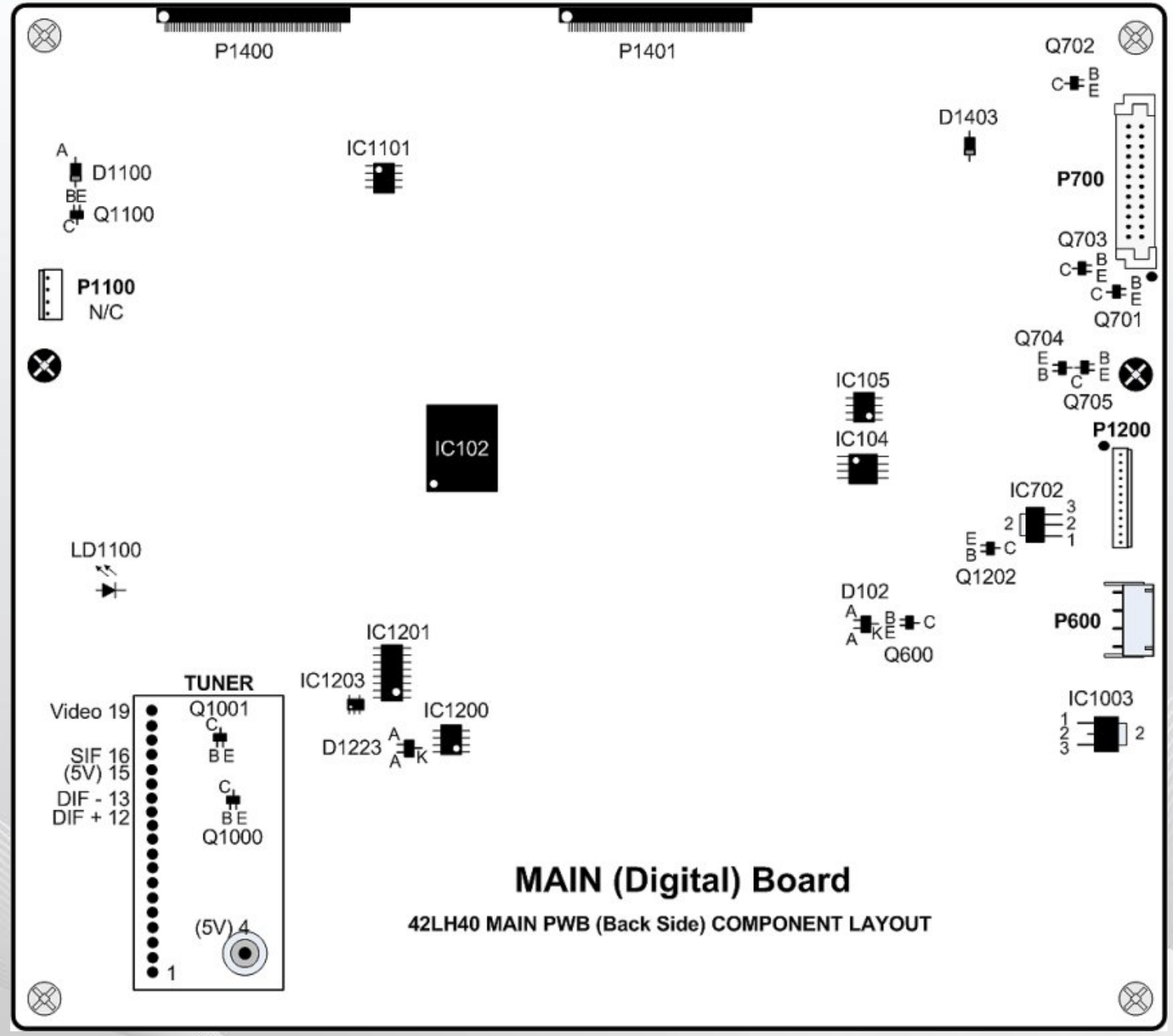


Pin	Source
A	Gnd
K	3.3V

D1204 LED Moving

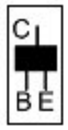
Pin	Ft LED
A	0V
K	0.14V
A	0V

Main PWB (Back View)



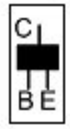
Main PWB (Back Side) Component Voltages

Q1000 Tuner SIF



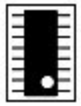
Pin	
E	2.4V
C	0V
B	3.0V

Q1001 Tuner Video



Pin	analog
E	2.5V
C	0V
B	3.2V

IC1201 RS232



Pin	
[1]	3.3V
[2]	5.6V
[3]	0V
[4]	0V
[5]	5.5V
[6]	5.5V
[7]	5.5V
[8]	0V
[9]	3.3V
[10]	3.26V
[11]	0V
[12]	3.3V
[13]	0V
[14]	5.6V
[15]	Gnd
[16]	3.3V

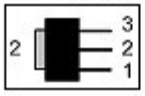
IC1200 HDMI

Pin	
[1]	Gnd
[2]	Gnd
[3]	Gnd
[4]	Gnd
[5]	4.8V
[6]	4.8V
[7]	4.8V
[8]	4.8V

IC1101 Flash

Pin	
[1]	0V
[2]	1V
[3]	3.26V
[4]	Gnd
[5]	0V
[6]	0.1V
[7]	3.26V
[8]	3.26V

IC702 STBY 3.3V

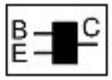


Pin	
[1]	Gnd
[2]	3.3V
[3]	5.1V

IC1203 SPDIF Optic

Pin	
[1]	3.25V
[2]	3.24V
[3]	Gnd
[4]	1.6V
[5]	3.25V

Q1202

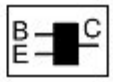


Pin	
E	0.1V
C	0V
B	3.3V

IC1003 9V Reg

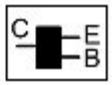
Pin	for Tuner
[1]	12.3V
[2]	8.9V
[3]	Gnd

Q600 Audio Mute



Pin	
E	0.1V
C	3.2V
B	0V

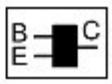
Q701 PWR-On to



Pin	P700 pin 2
E	5.12V
C	4.99V
B	3.07V

Turned on by Q700

Q702 INV-On to

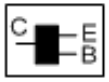


Pin	P700 pin 20
E	0V
C	3.8V
B	0V

D1403 LVDS 16V

Pin	Source
A	12.2V
K	16.6V

Q701 PWR-On to



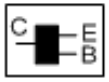
Pin	P700 pin 2
E	5.12V
C	4.99V
B	3.07V

Turned on by Q700

Q703 Turns on 5V

Pin	General Q706
E	0V
C	0V
B	0.62V

Q705 Turns on LVDS



Pin	12V Q706
E	0V
C	0V
B	0.66V

IC105 HDCP EEPROM

Pin	
1	Gnd
2	Gnd
3	5.05V
4	Gnd
5	5.05V
6	5.05V
7	3.25V
8	3.25V

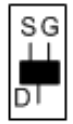
D1100 LD1100 (Q1100)

Pin	Gate
A	0V
K	0.33WV

IC104 EEPROM

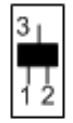
Pin	
1	Gnd
2	Gnd
3	Gnd
4	Gnd
5	3.25V
6	3.25V
7	0V
8	3.25V

IC1100 LD1100 Driver



Pin	
G	0.29V
D	2.9V
S	0V

IC107 Power Det

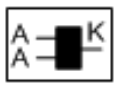


Pin	Reset
1	0.0V
2	3.3V
3	3.2V

D102 Audio Mute

Pin	Routing
A	0V
K	0.1V
A	0V

D1223 B+ Routing

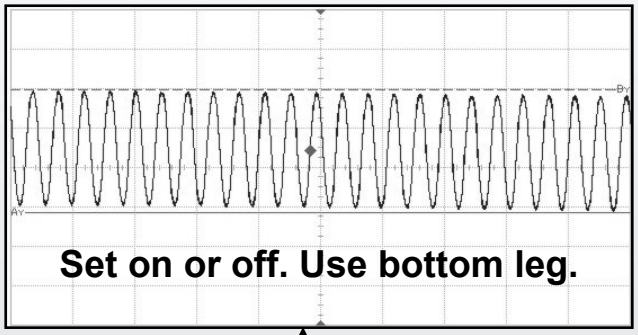


Pin	RGB
A	5.1V
K	4.8V
A	0V

Main PWB X100, X1100 and X1005 Crystal Check

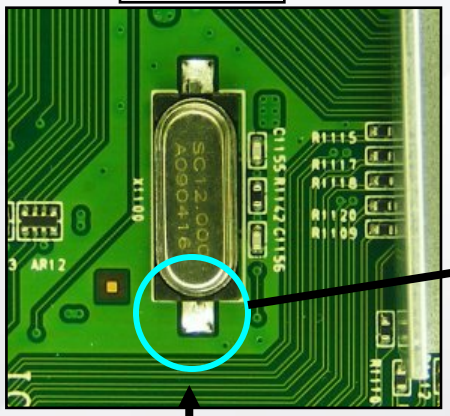
IC100 Microprocessor Crystal

3.2Vp/p 12Mhz



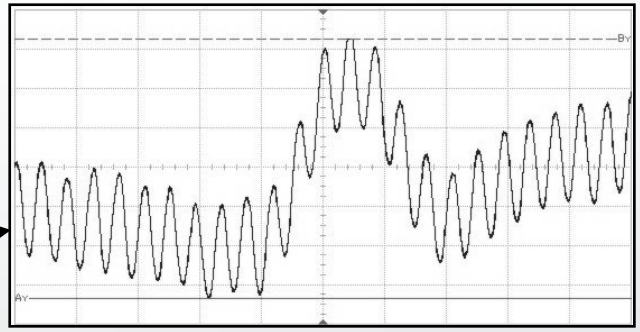
Set on or off. Use bottom leg.

X1100

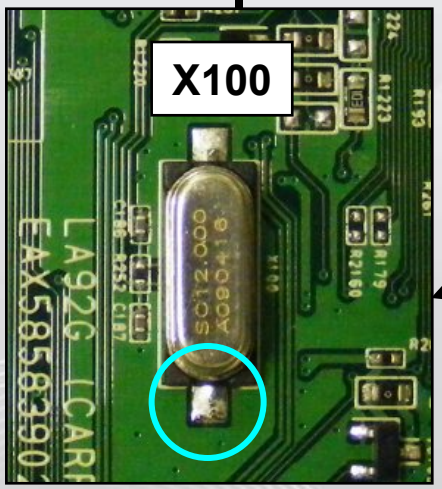


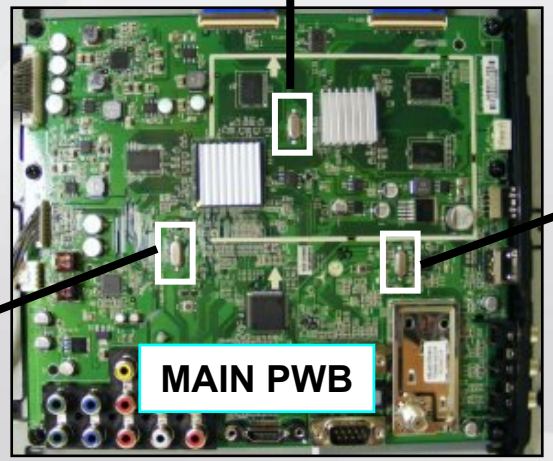
TruMotion IC1100 Crystal

Set on. Use bottom leg.
2.4Vp/p 12Mhz



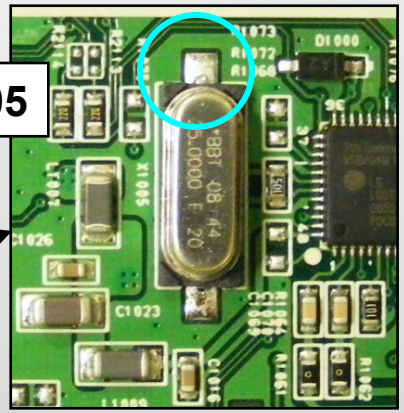
X100



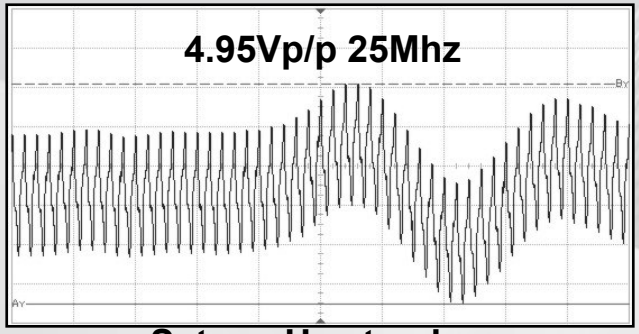


MAIN PWB

X1005



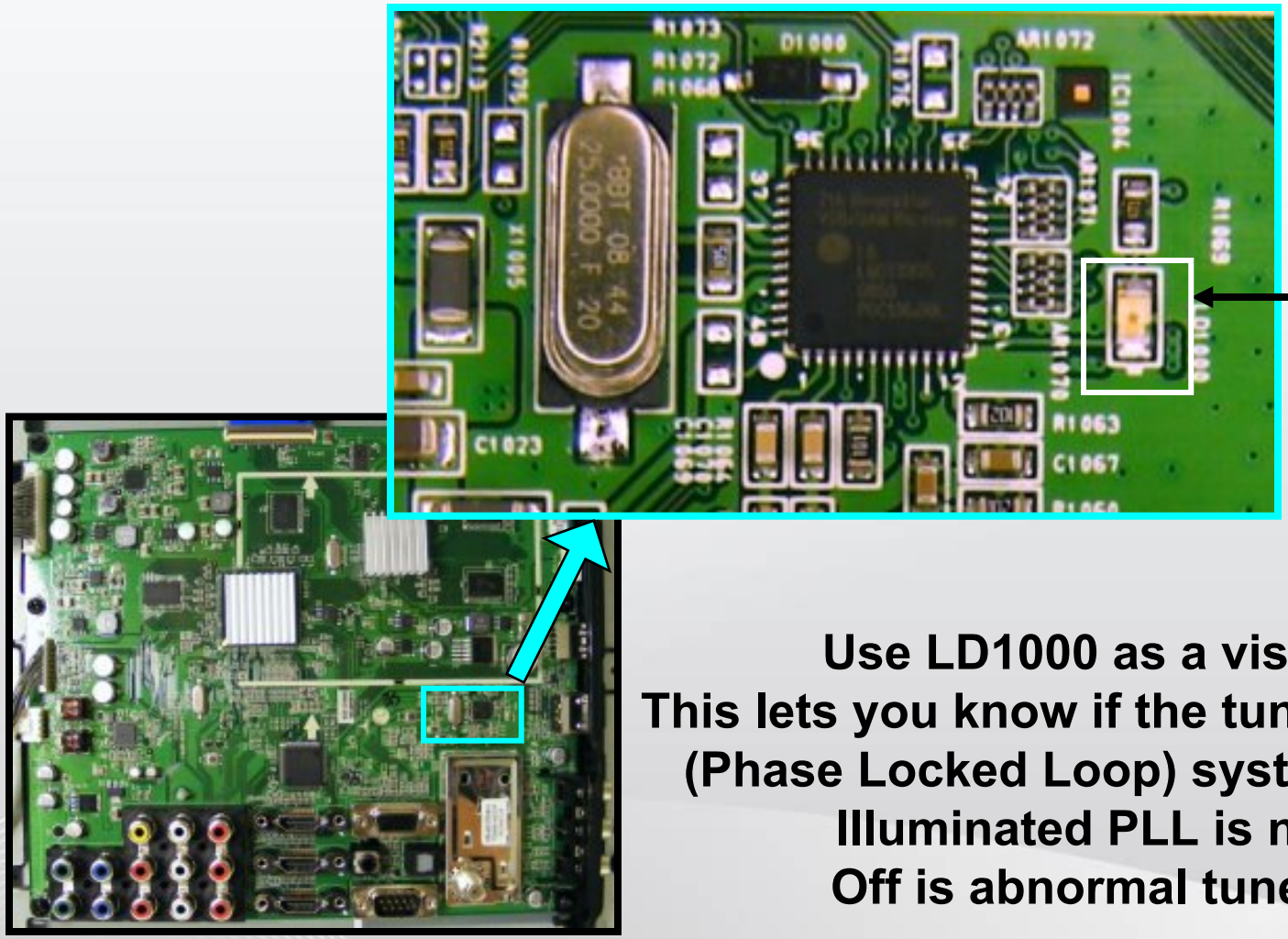
Tuner Control IC1005 Crystal



4.95Vp/p 25Mhz

Set on. Use top leg.

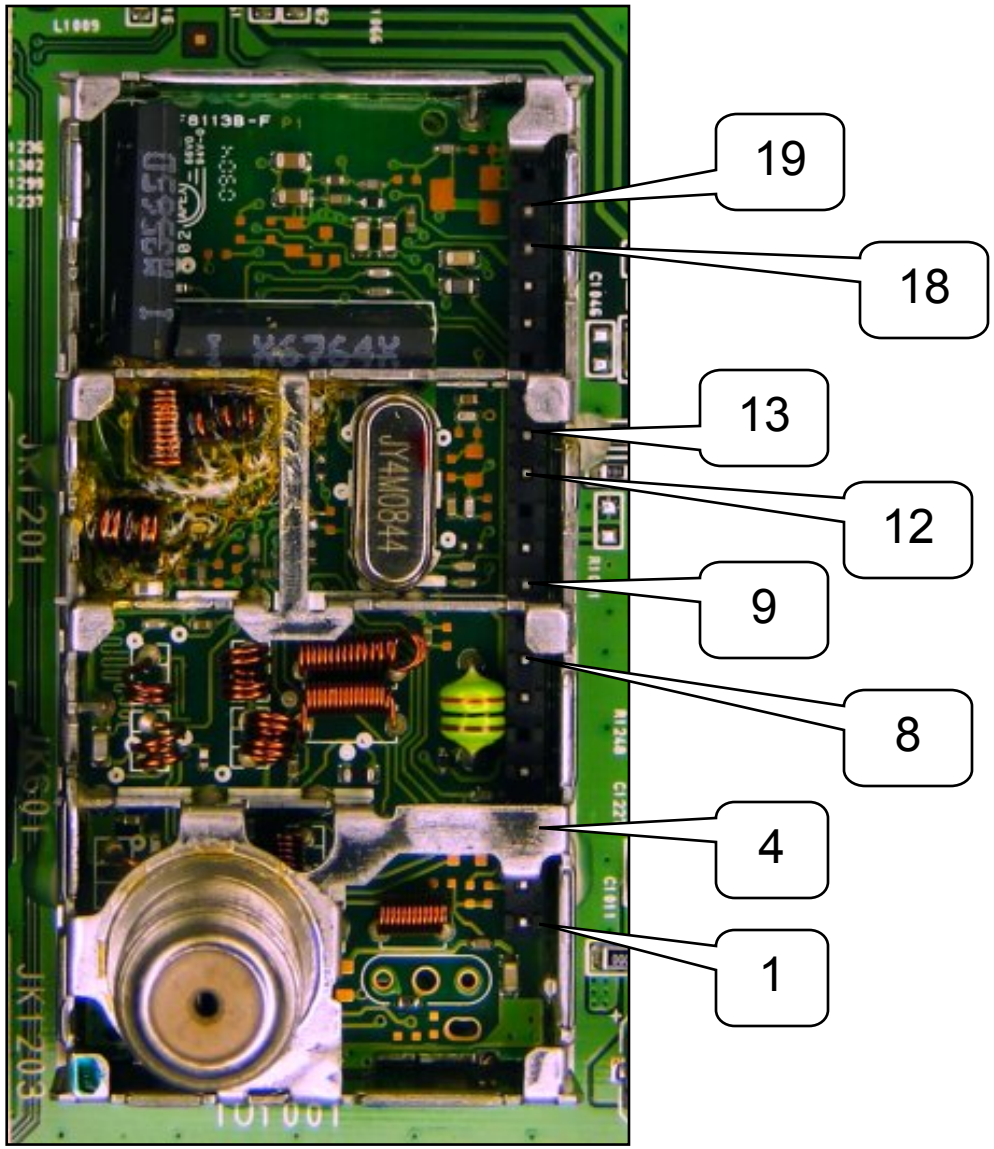
Main PWB LD1000 Function



Main PWB
LD1000 Location

Use LD1000 as a visual aid.
This lets you know if the tuner internal PLL (Phase Locked Loop) system is locked.
Illuminated PLL is normal.
Off is abnormal tuner lock.

Main PWB Tuner with Shield Off (Pin ID)

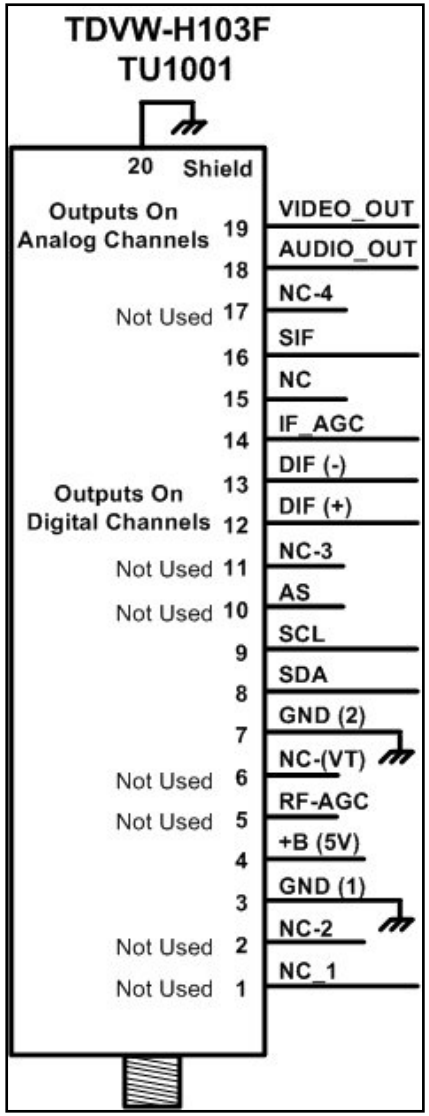


TDVW-H103F
TU1001

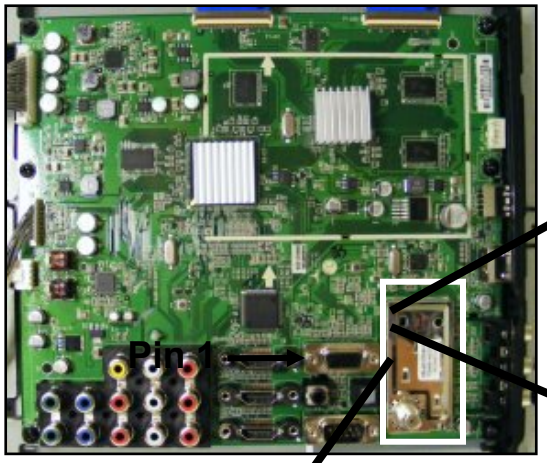
	20	Shield	
Outputs On Analog Channels	19	VIDEO_OUT	(3.15V)
	18	AUDIO_OUT	(2.45V)
Not Used	17	NC-4	
	16	SIF	(2.5V)
	15	NC	
	14	IF_AGC	(3.2V)
Outputs On Digital Channels	13	DIF (-)	(0V)
	12	DIF (+)	(0V)
Not Used	11	NC-3	
Not Used	10	AS	(1.38V)
	9	SCL	(5V)
	8	SDA	(5V)
	7	GND (2)	
Not Used	6	NC-(VT)	
Not Used	5	RF-AGC	(4.46V)
	4	+B (5V)	(5V)
	3	GND (1)	
Not Used	2	NC-2	(0V)
Not Used	1	NC_1	(0V)

Main PWB Tuner Video and SIF Output Check

USING COLOR BAR SIGNAL INPUT

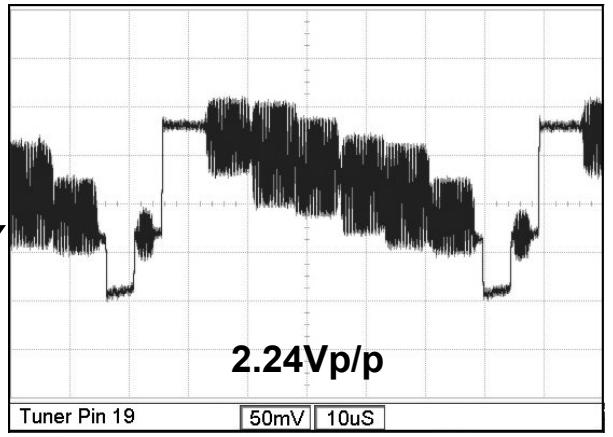


MAIN PWB Tuner Location

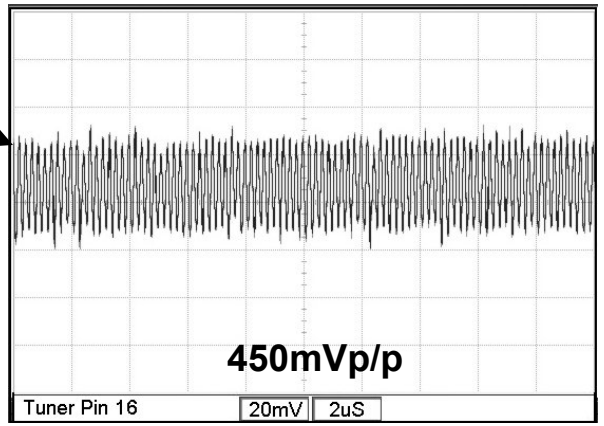


Pin 19 "Video" Signal

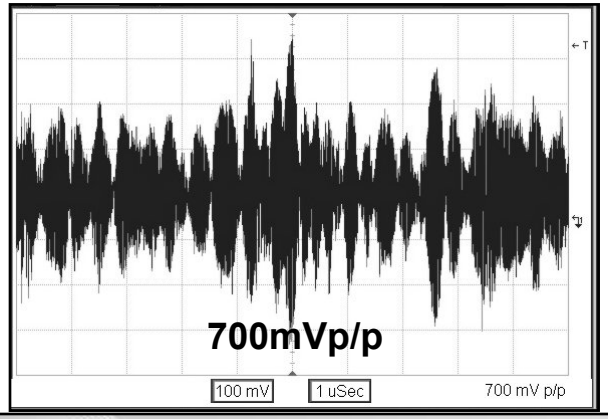
Note: "Video Out" Signal only when receiving an analog Channel.



Pin 16 "SIF" Signal

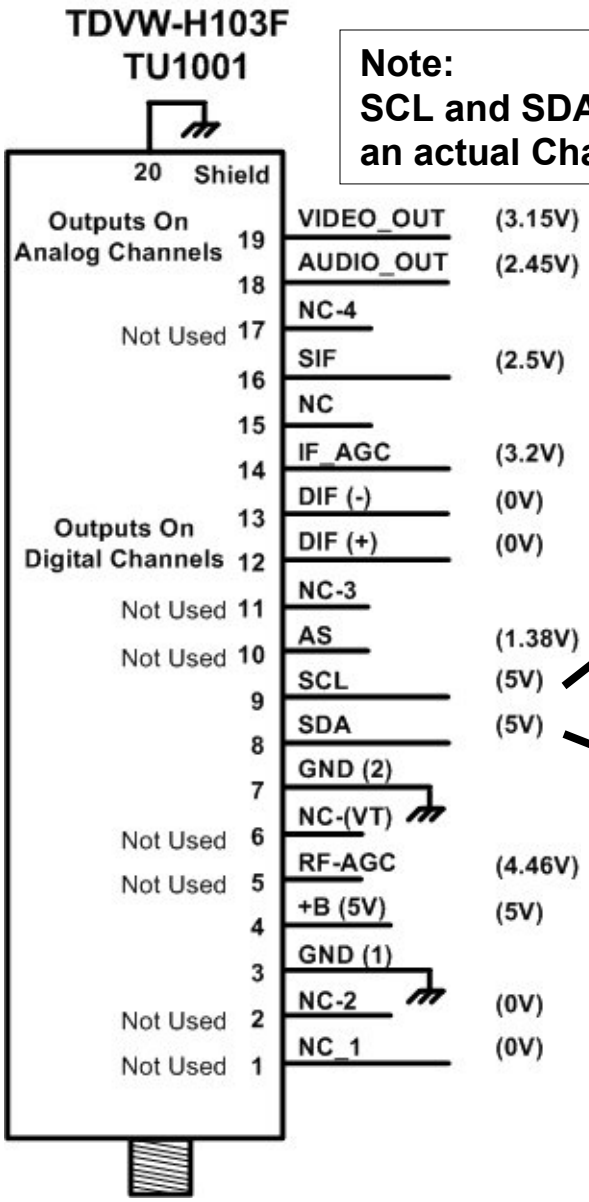


Pin 12 and Pin 13 "Dig IF" Signal

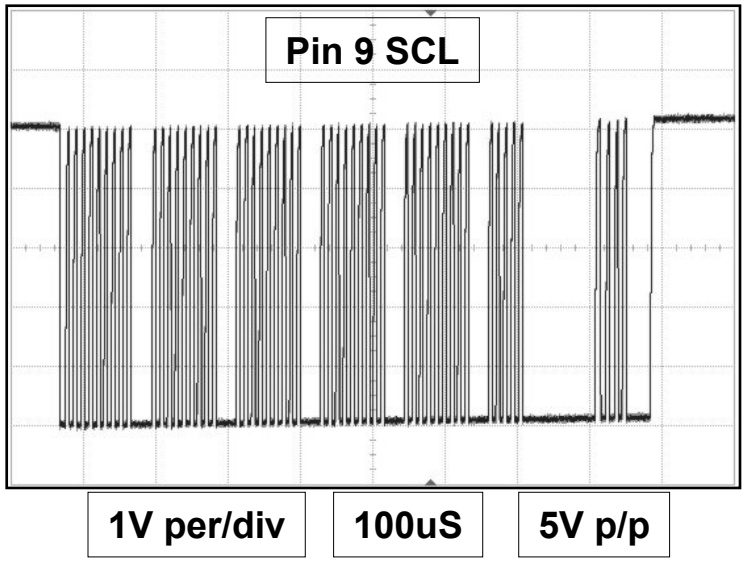


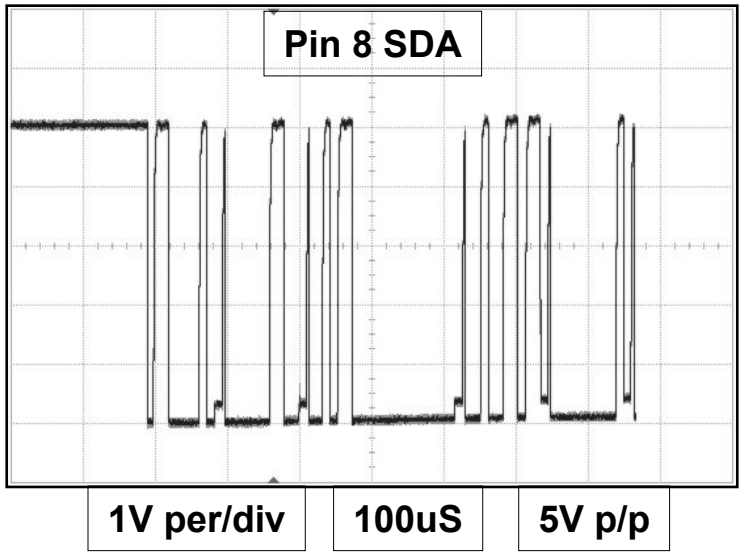
Note:
"Dig IF" Signal only when receiving a Digital Channel.

Main PWB Tuner Clock and Data Lines

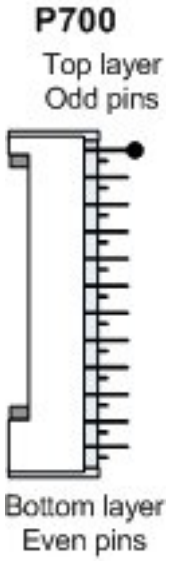


Note:
SCL and SDA only active during an actual Channel Change.





Main PWB Connector P700 to Power Supply Voltage and Resistance



P700 "Main PWB" to P201 "SMPS PWB"

Odd Pins

Pin	Label	STBY	Run	Diode Check
1	nc	nc	nc	nc
3	Gnd	Gnd	Gnd	Gnd
5	Gnd	Gnd	Gnd	Gnd
7	5V	5.14V	5.14V	1.1V
9	5V	5.14V	5.14V	1.1V
11	Gnd	Gnd	Gnd	Gnd
13	12V	0V	12.3V	2.1V
15	Gnd	Gnd	Gnd	Gnd
17	24V	0V	21.4V	Open
19	nc	nc	nc	nc
21	[1]A.DIM	0V	1.7V	2V
23	nc	nc	nc	nc

Even Pins

Pin	Label	STBY	Run	Diode Check
2	PWR-ON	0V	4.98V	1.87V
4	Gnd	Gnd	Gnd	Gnd
6	Gnd	Gnd	Gnd	Gnd
8	5V	5.14V	5.14V	1.1V
10	5V	5.14V	5.14V	1.1V
12	Gnd	Gnd	Gnd	Gnd
14	12V	0V	12.3V	2.1V
16	Gnd	Gnd	Gnd	Gnd
18	24V	0V	21.4V	Open
20	Inv.Out	0V	3.8V	1.9V
22	Err Out	0V	0V	Open
24	[2]PDIM	0V	3.2V	Open

[1]ADIM Pin 21 Fixed and not used

[2]PDIM Pin 24 can vary according to type of signal being processed, OSD Backlight setting. 0.6V 0% to 3.3V 100% and the Intelligent Sensor. Output from the Video Processor IC100.

Diode Mode values taken with all Connectors Removed

Main PWB Connector P1400 to the Panel Voltage and Resistance

P1400 CONNECTOR "Main" to "The Panel"

Diode Mode values taken with all Connectors Removed

Pin	Label	Run	Diode Test
1	Gnd	Gnd	Gnd
2	**VGL**	**(-5V)**	**0.925V**
3	Gnd	Gnd	Gnd
4	**VGH M**	**26V**	**Open**
5	VCOM_FB	7V	Open
6	VCOM_L	7V	1.4V
7	GMA1	14V	2.0V
8	GMA2	16V	1.4V
9	GMA3	14V	1.36V
10	GMA4	13.3V	2.0V
11	GMA5	12.3V	2.0V
12	GMA6	11.2V	1.37V
13	GMA7	10.3V	2.0V
14	GMA9	8.4V	2.0V
15	Gnd	Gnd	Gnd
16	GOE	0.6V	1.3V
17	GSP_R	0.6V	1.3V
18	GSC	1.63V	1.3V
19	H_CONV	0V	Open
20	GSP_R	0V	1.3V

Pin	Label	Run	Diode Test
21	POL	1.63V	1.3V
22	SOE_L	0.2V	1.45V
23	Gnd	Gnd	Gnd
24	LMLV8N	1.2V	1.29V
25	LMLV8P	1.23V	1.29V
26	LMLV7N	1.2V	1.29V
27	LMLV7P	1.25V	1.24V
28	LMLV6N	1.22V	1.29V
29	LMLV6P	1.21V	1.3V
30	LMLV5N	1.2V	0.9V
31	LMLV5P	1.2V	1.29V
32	LMCLKN	1.26V	1.29V
33	LMCLKP	1.25V	1.29V
34	LMLV3N	1.23V	1.29V
35	LMLV3P	1.23V	0.89V
36	LMLV2N	1.3V	1.29V
37	LMLV2P	1.2V	1.29V
38	LMLV1N	1.3V	1.29V
39	LMLV1P	1.2V	1.29V
40	LMLV0N	1.28V	1.29V

Pin	Label	Run	Diode Test
41	LMLV0P	1.2V	0.89V
42	Gnd	Gnd	Gnd
43	OPT_N	3.24V	1.3V
44	GMA10	7.9V	1.4V
45	GMA12	6V	2.0V
46	GMA13	5.2V	2.0V
47	GMA14	4V	1.4V
48	GMA15	3V	2.0V
49	GMA16	2.3V	2.0V
50	GMA17	0.3V	1.39V
51	GMA18	2.3V	2.0V
52	Gnd	Gnd	Gnd
53	**VCC**	**3.3V**	**1.6V**
54	**VCC**	**3.3V**	**1.6V**
55	Gnd	Gnd	Gnd
56	**VDD**	**16V**	**2.0V**
57	**VDD**	**16V**	**2.0V**
58	**VDD**	**16V**	**2.0V**
59	LTD_L	8.2V	Open
60	Gnd	Gnd	Gnd

Main PWB Connector P1401 to the Panel Voltage and Resistance

P1401 CONNECTOR "Main" to "The Panel"

Diode Mode values taken with all Connectors Removed

Pin	Label	Run	Diode Test
1	Gnd	Gnd	Gnd
2	LTD_R	8.9V	Open
3	**VDD**	**16.55V**	**2.0V**
4	**VDD**	**16.55V**	**2.0V**
5	**VDD**	**16.55V**	**2.0V**
6	Gnd	Gnd	Gnd
7	**VCC**	**3.3V**	**1.6V**
8	**VCC**	**3.3V**	**1.6V**
9	Gnd	Gnd	Gnd
10	GMA1	14V	2.0V
11	GMA2	16V	1.4V
12	GMA3	14V	1.36V
13	GMA4	13.4V	2.0V
14	GMA5	12.3V	2.0V
15	GMA6	11.2V	1.4V
16	GMA7	10.4V	2.0V
17	GMA9	8.45V	2.0V
18	GOE	0.6V	1.3V
19	GSP_Rev	0V	1.3V
20	GSC	1.6V	1.3V

Pin	Label	Run	Diode Test
21	H_CONV	OV	Open
22	GSP	OV	1.3V
23	POL	1.62V	1.3V
24	SOE	0.2V	1.5V
25	Gnd	Gnd	Gnd
26	RMLV8N	1.2V	0.89V
27	RMLV8P	1.25V	1.3V
28	RMLV7N	1.19V	1.3V
29	RMLV7P	1.21V	1.3V
30	RMLV6N	1.2V	1.3V
31	RMLV6P	1.2V	1.3V
32	RMLV5N	1.19V	1.3V
33	RMLV5P	1.25V	1.3V
34	RMCLKN	1.25V	1.3V
35	RMCLKP	1.23V	1.3V
36	RMLV3N	1.21V	1.3V
37	RMLV3P	1.26V	1.3V
38	RMLV2N	1.19V	1.3V
39	RMLV2P	1.26V	1.3V
40	RMLV1N	1.22V	1.3V

Pin	Label	Run	Diode Test
41	RMLV1P	1.25V	1.3V
42	RMLON	1.20V	1.3V
43	RMLOP	1.26V	1.3V
44	Gnd	Gnd	Gnd
45	OPT_N	3.23V	1.31V
46	OPT_P	OV	0.9V
47	GMA10	7.93V	1.4V
48	GMA12	6V	2.0V
49	GMA13	5.18V	1.5V
50	GMA14	4.86V	1.4V
51	GMA15	3V	2.0V
52	GMA16	2.3V	1.4V
53	GMA17	1.3V	1.4V
54	GMA18	2.3V	2.0V
55	VCOM_R	7V	2.0V
56	n/c	n/c	n/c
57	**VGH**	**26V**	**Open**
58	Gnd	Gnd	Gnd
59	**VGL**	**(-5V)**	**0.925V**
60	Gnd	Gnd	Gnd

Main PWB Connector P1204 to (Ft. IR/LED Control) Voltage and Resistance

P1204 CONNECTOR "MAIN PWB" to P1 "Front IR / LED PWB Assy"

Pin	Label	STBY	Run	Diode Check
1	**SCL**	3.3V	3.3V	1.14V
2	**SDA**	3.3V	3.3V	1.14V
3	**Gnd**	Gnd	Gnd	Gnd
4	**Key1**	3.3V	3.3V	1.08V
5	**Key2**	3.3V	3.3V	1.08V
6	**5V ST**	**5.1V**	**5.1V**	**1.13V**
7	**Gnd**	Gnd	Gnd	Gnd
8	**Gnd**	Gnd	Gnd	Gnd
9	**IR**	4.8V	4.8V	Open
10	**Gnd**	Gnd	Gnd	Gnd
11	**3.3V_ST**	3.29V	3.29V	0.6V
12	**POWER On/Off**	0V	3.29V	2.17V

Diode Mode values taken with all Connectors Removed

Main PWB Connector P600 to Speakers Voltage and Resistance

P600 CONNECTOR "Main" to "Speakers"

Pin	LABEL	SBY	Run	Diode Check
1	SPK-R(-)	0V	10.7V	1.5V
2	SPK-R(+)	0V	10.7V	1.5V
3	SPK-L(-)	0V	10.7V	1.5V
4	SPK-L(+)	0V	10.7V	1.5V

Use speaker out to test for defective Audio Amp IC600

Diode Mode values taken with all Connectors Removed

FRONT CONTROL (IR and INTELLIGENT SENSOR) SECTION

The Front Control PWB (located on the bottom left as viewed from the rear) contains the IR (Infrared Remote Sensor) and the Intelligent Sensor plus the front Power LEDs.
This board also connects with the Side Key PWB.

This board receives it operating B+ via pin 6 (STBY 5V) and pin 11 (STBY 3.3V) on connector P1.
It is received from the Main PWB via the connector P1200.

The Intelligent Sensor communicates with the Video Processor IC100 via clock and data lines on the same connector pins 1 and 2.

The IR pulses (5V p/p) are sent to the Microprocessor (same IC100) via pin 9.

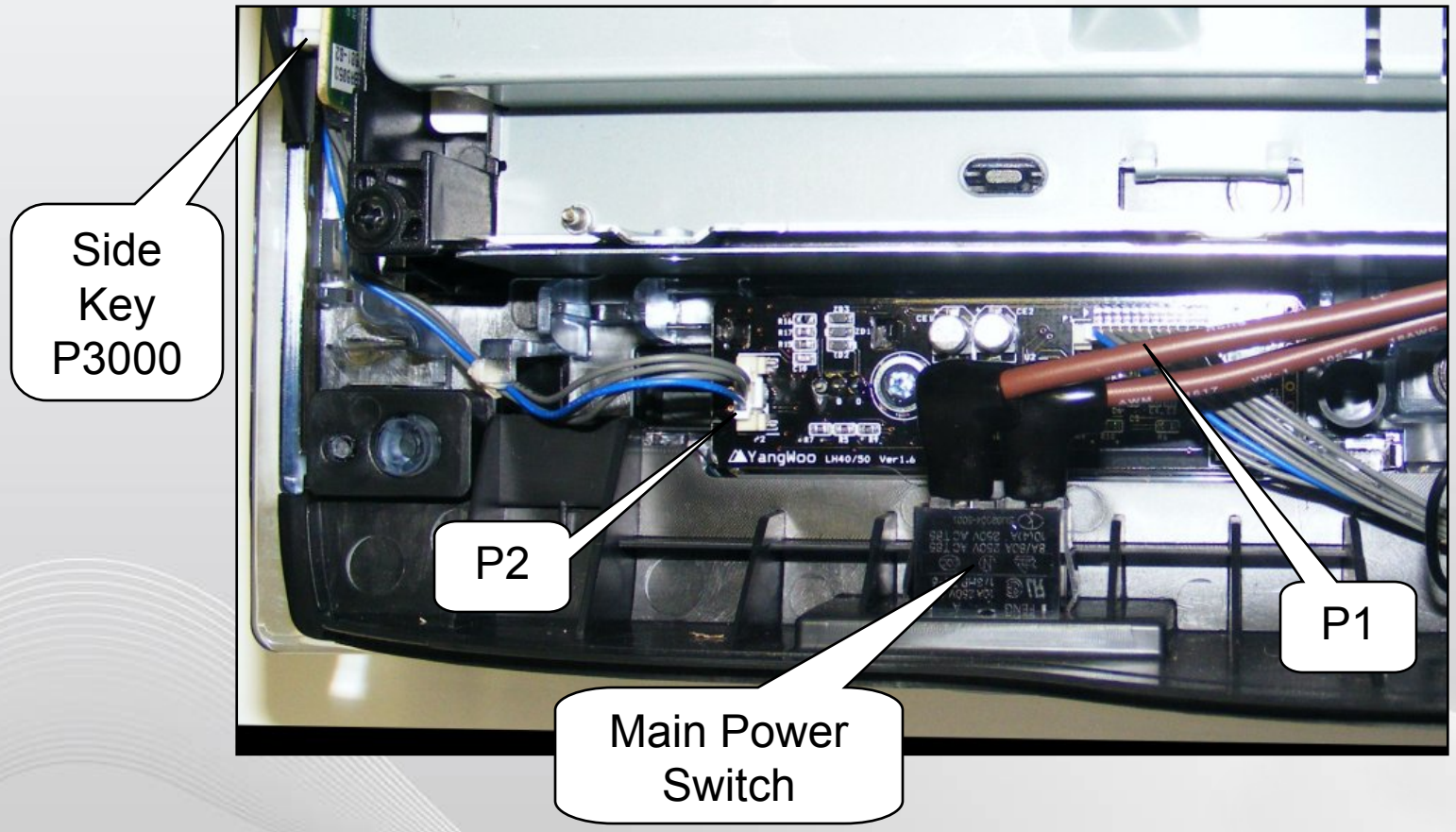
The Key board connector P3000 is routed to the Ft control board via P2. Then through the front Control board and out P2 to the Microprocessor via P1200 pins 4 and 5.

Finally, the front Power LEDs are controlled by pin 12 and pin 8.

FRONT CONTROL BOARD CONNECTIONS IDENTIFIED

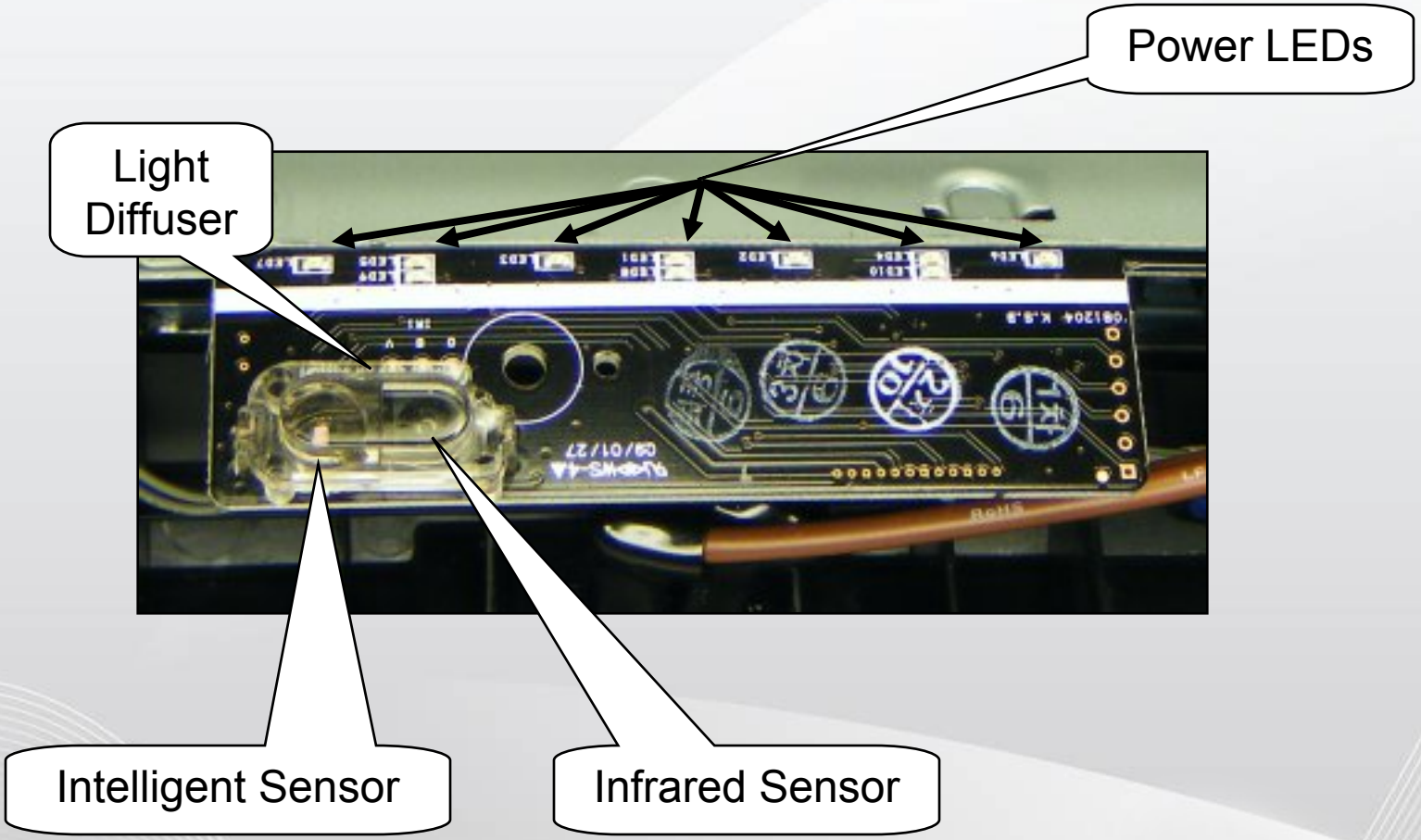
The below picture shows the connections to the Front Control board.

p/n EBR59216901



FRONT CONTROL (IR and INTELLIGENT SENSOR) IDENTIFIED

The Front Control PWB (located on the bottom left as viewed from the rear) contains the IR (Infrared Remote Sensor) and the Intelligent Sensor plus the front Power LEDs.



Ft. IR / LED Control Connector P1 and P2 Voltage and Diode Check

P1 CONNECTOR "Front IR / LED PWB Assembly " to P1204 " MAIN PWB "

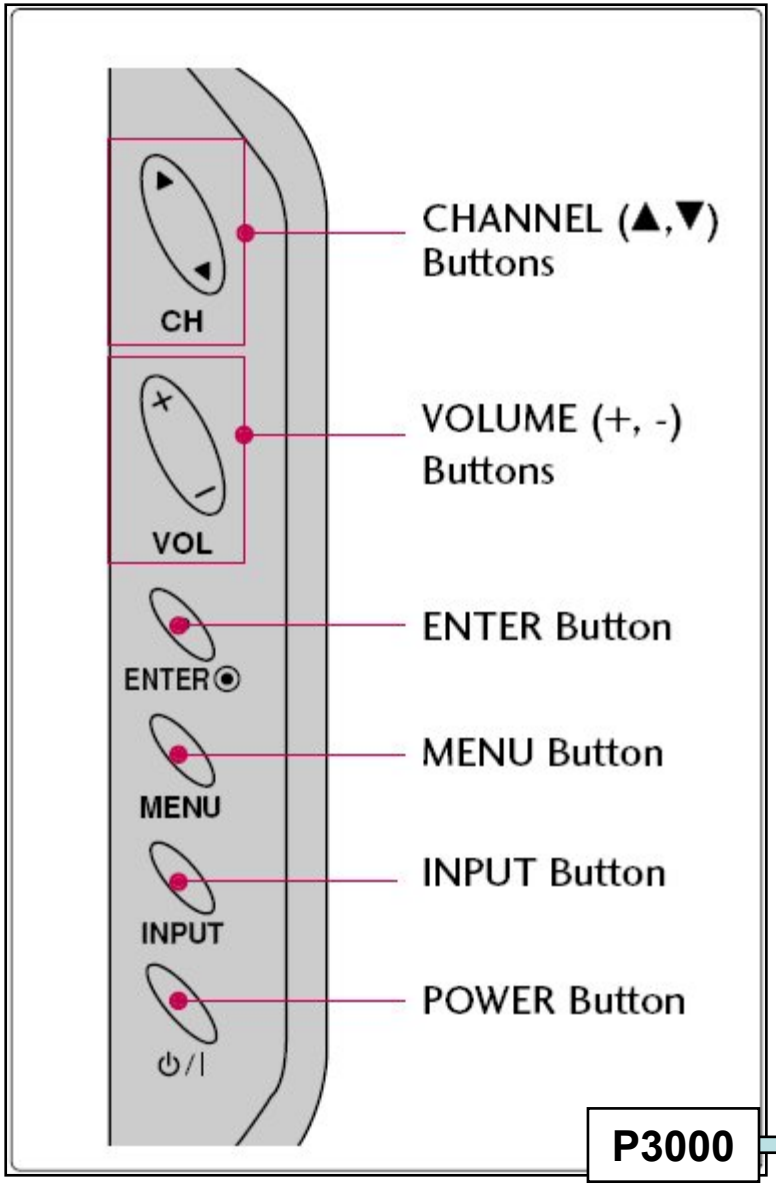
Pin	Label	STBY	Run	Diode Check
1	SCL	3.3V	3.3V	Open
2	SDA	3.3V	3.3V	Open
3	Gnd	Gnd	Gnd	Gnd
4	Key1	3.3V	3.3V	Open
5	Key2	3.3V	3.3V	Open
6	5V ST	5.1V	5.1V	1.13V
7	Gnd	Gnd	Gnd	Gnd
8	Gnd	Gnd	Gnd	Gnd
9	IR	4.8V	4.8V	Open
10	Gnd	Gnd	Gnd	Gnd
11	3.3V_ST	3.29V	3.29V	Open
12	POWER On/Off	0V	3.29V	Open

P2 Connector to “Side Key" P1

Pin	Label	STBY	Run	Diode Check
1	Key 1	3.3V	3.3V	Open
2	Gnd	Gnd	Gnd	Gnd
3	Key 2	3.3V	3.3V	Open
4	Gnd	Gnd	Gnd	Gnd

Diode Mode values taken with all Connectors Removed

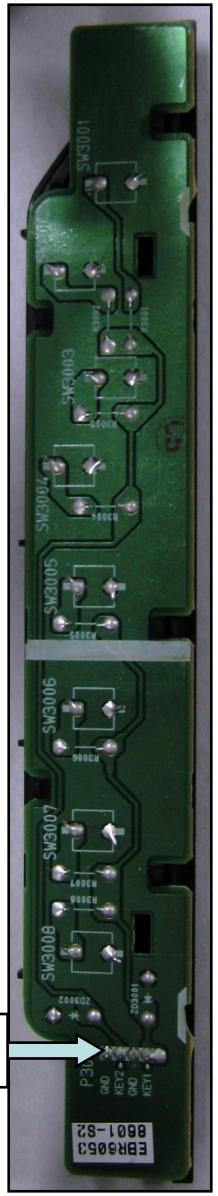
Side Key Assembly



SW3001
SW3002
SW3003
SW3004
SW3005
SW3006
SW3007
SW3008

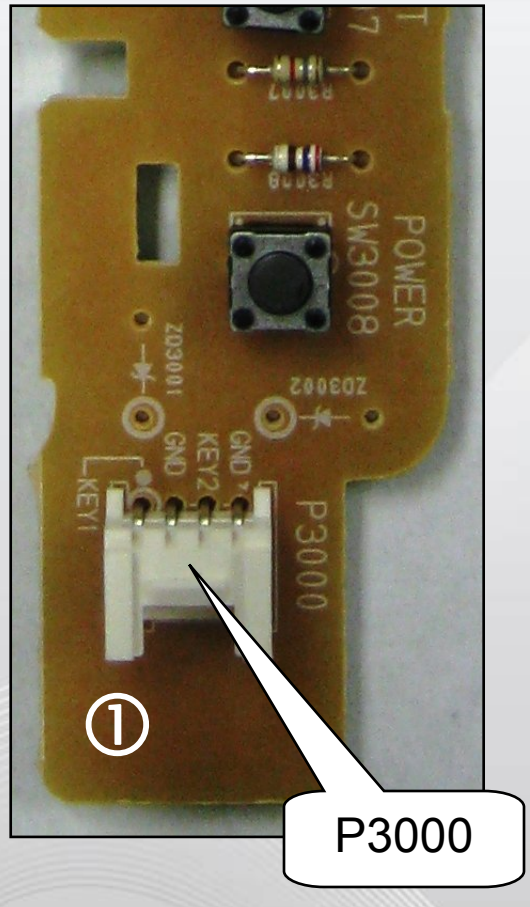
P3000

To Ft Control



P3000 ①

Side Key Assembly P3000 Voltage and Diode Check



P3000 Resistance Measurements with Key pressed.

KEY	Pin 1 measured from Gnd		KEY	Pin 3 measured from Gnd
Power	270.5 Ohms		Volume (-)	270.5 Ohms
Input	1.8K Ohms		Volume (+)	1.8K Ohms
Menu	4.8K Ohms		CH (Dn)	4.8K Ohms
Enter	10K Ohms		CH (Up)	10K Ohms

P3000 Voltage Measurements with Key pressed.

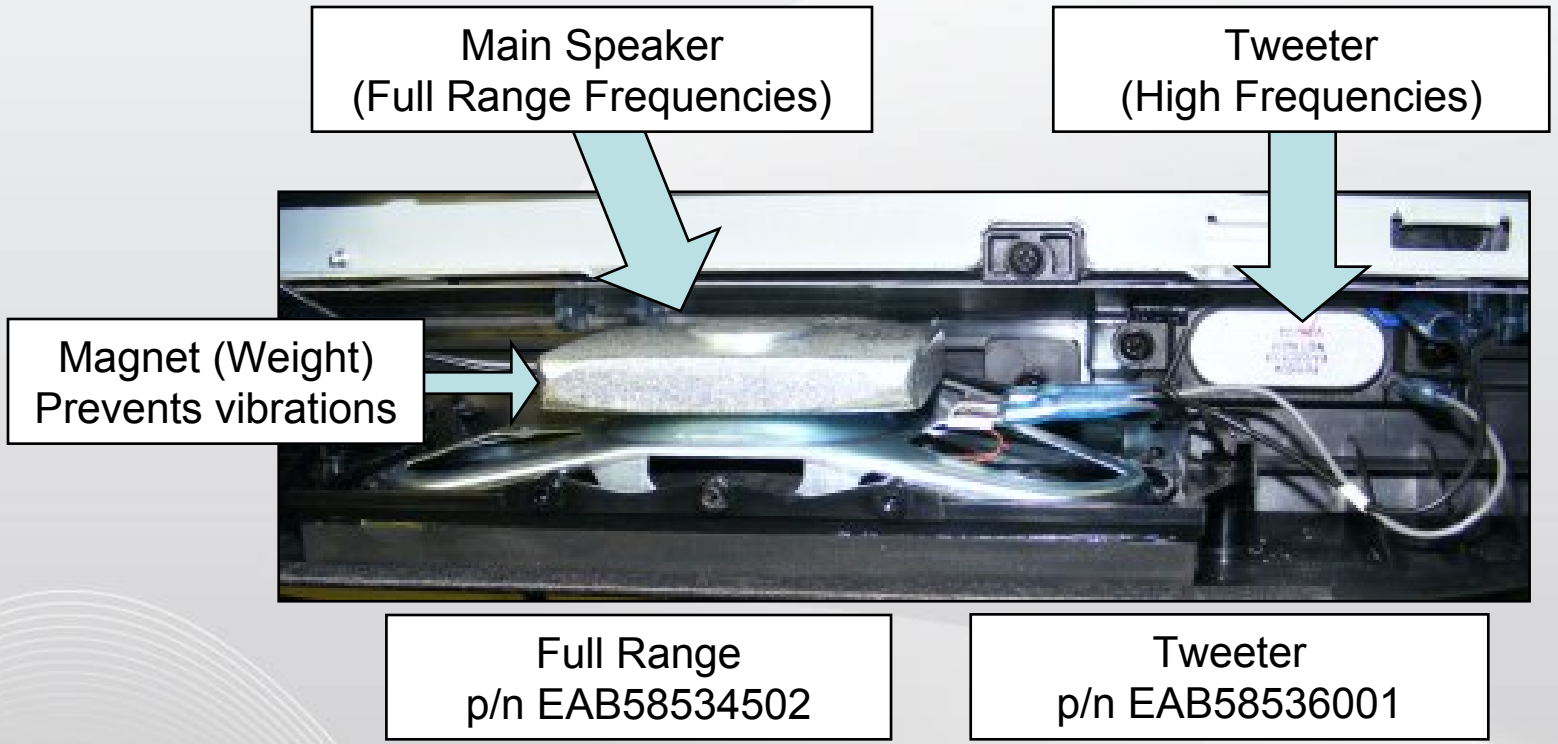
KEY	Pin 1 measured from Gnd		KEY	Pin 3 measured from Gnd
Power	0.179V		Volume (-)	0.179V
Input	0.906V		Volume (+)	0.906V
Menu	1.65V		CH (Dn)	1.65V
Enter	2.24V		CH (Up)	2.24V

P3000 Connector "Side Key" to "IR/LED Control

Pin	Label	STBY	Run	Diode Check
1	Key1	3.3V	3.3V	Open
2	Gnd	Gnd	Gnd	Gnd
3	Key2	3.3V	3.3V	Open
4	Gnd	Gnd	Gnd	Gnd

Invisible Speaker System Overview (Full Range Speakers)

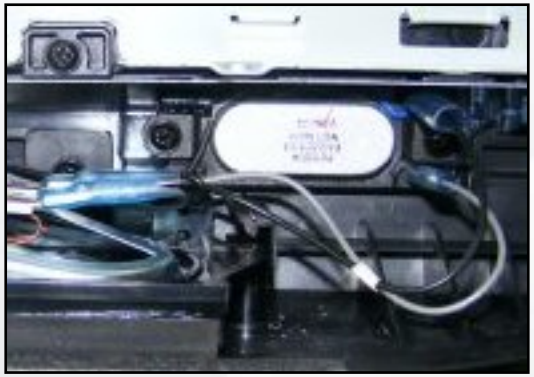
The 42LH40 contains the full progression of the Invisible Speaker system. First: The woofer layout is the basic system. The Full Range Speakers point downward, so there is no front viewable speaker grill or air ports.



Invisible Speaker System Overview (Tweeters)

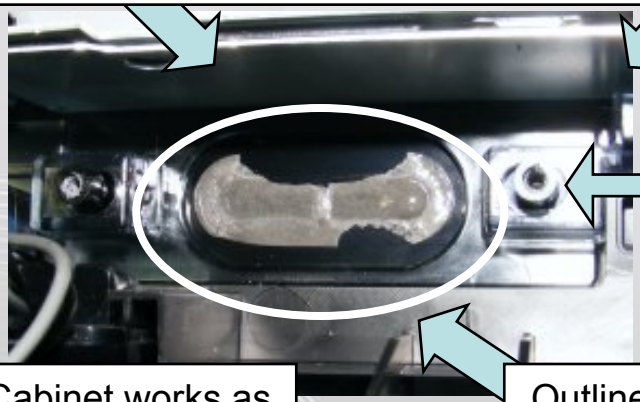
2nd: Progression Elimination of the conventional speaker.

Invisible Speaker has a sticky surface which adheres to front bezel.



WARNING: Removing the Tweeter will destroy the speaker as shown above. The diaphragm/spider is glued to the front bezel. When removing, it will tear.

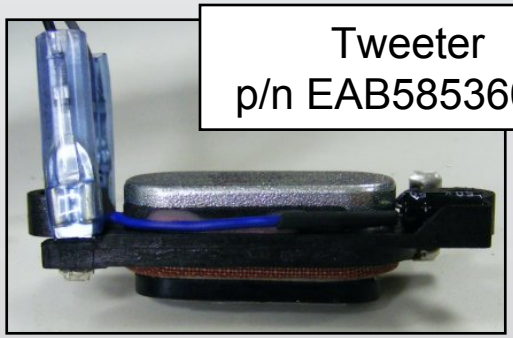
The front bezel is shown below. Note: the outlined circle is the location for the front sticky pad on the Invisible Speaker. This prevent the coil from bouncing off the plastic causing vibrations.



Speaker Attachment post

Cabinet works as a diaphragm.

Outlined Circle

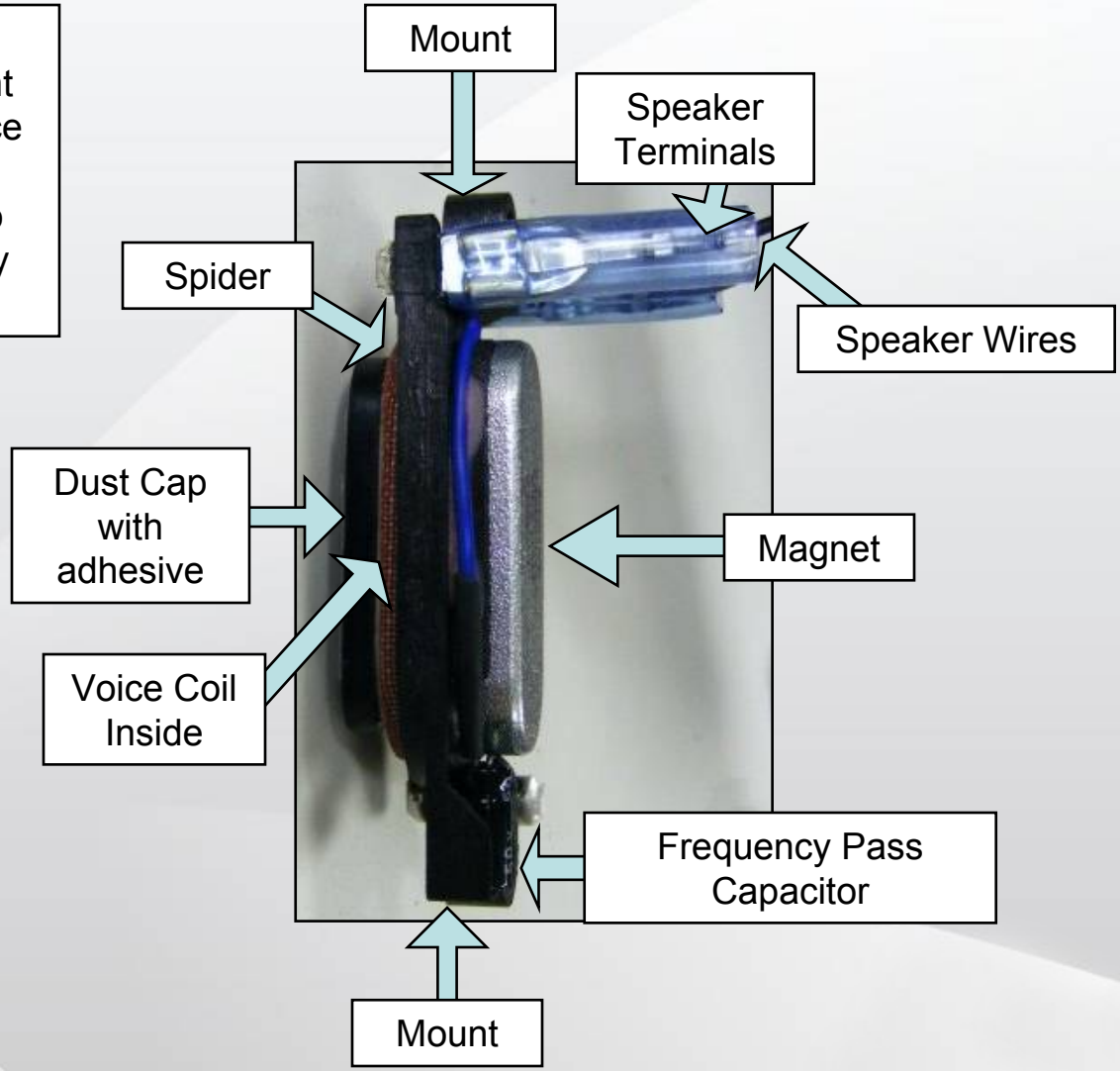


Tweeter p/n EAB58536001

Invisible Speaker Tweeter shown separately. The Front (down) has sticky surface which adheres to front bezel. Note, there is no diaphragm, only voice coil.

Invisible Speaker System Overview

Invisible Speaker
Shown separately. Front (to left) has sticky surface which adheres to front bezel. Note, there is no Cone (Diaphragm), only voice coil.



11 X 17 FOLDOUT SECTION

This section shows the 11X17 foldout that's available in the Paper and Adobe version of the Training Manual.

The Adobe version of this Training Manual allows the viewer to zoom in and out making reading of the small text easier.
This Power Point shows a graphical representation of the 11 X 17 foldout page so clarity is limited.

42LH40 INTERCONNECT DIAGRAM

TO TFT MODULE

SMPS TEST 1: To Force Power Supply On.
Disconnect P700 on Main PWB.
Jump pin 7,8,9 or 10 (5V) to pin 2 using a 100Ω resistor. (Test Voltage Outputs 12V, and 24V).

SMPS TEST 2: Jump pin 2 to pin 20 (INV-ON).
(Backlights and all voltages should turn on).

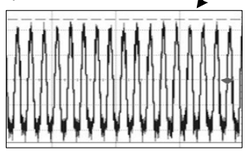
P201 "SMPS" to P700 "Main PWB"

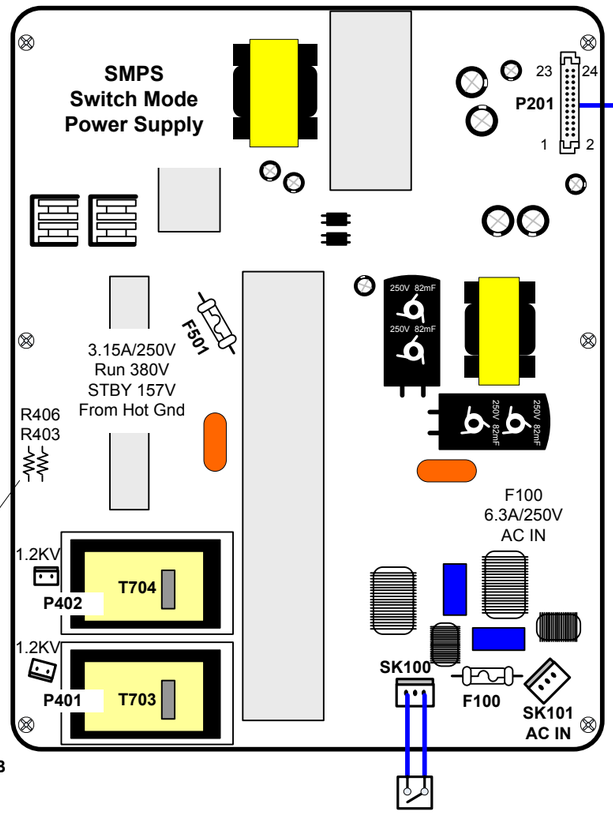
Pin	Label	STBY	Run	Diode Check
24	[2] PDIM	0V	3.2V	Open
23	nc	nc	nc	nc
22	Err Out	0V	0V	Open
21	[1] A.DIM	0V	1.66V	Open
20	INV.ON	0V	3.8V	2.25V
19	nc	nc	nc	nc
17,18	24V	0V	21.4V	0.81V
15,16	Gnd	Gnd	Gnd	Gnd
13,14	12V	0V	12.3V	1.2V
11,12	Gnd	Gnd	Gnd	Gnd
7,8,9,10	5V	5.14V	5.14V	2.85V
3,4,5,6	Gnd	Gnd	Gnd	Gnd
2	PWR-On	0V	4.98V	1.19V
1	nc	nc	nc	nc

[1] ADIM Pin 21 Fixed and not used

[2] PDIM Pin 24 can vary according to type of signal being processed and the OSD Backlight setting. 0.6V 0% to 3.3V 100%. Output from the IC100.

R406 / R403
Bottom leg
48Khz
53V p/p





P1204 CONNECTOR "MAIN PWB" to J1 "Front IR / LED PWB

Pin	Label	STBY	Run	Diode Check
1	SCL	3.3V	3.3V	Open
2	SDA	3.3V	3.3V	1.67V
3	Gnd	Gnd	Gnd	Gnd
4	Key1	3.3V	3.3V	1.4V
5	Key2	3.3V	3.3V	1.1V
6	5V ST	5.1V	5.1V	1.5V
7	Gnd	Gnd	Gnd	Gnd
8	Gnd	Gnd	Gnd	Gnd
9	IR	4.8V	4.8V	Open
10	Gnd	Gnd	Gnd	Gnd
11	3.3V_ST	3.29V	3.29V	0.76V
12	POWER On/Off	0V	3.29V	Open

Side (Key) Controls

P3000

P1

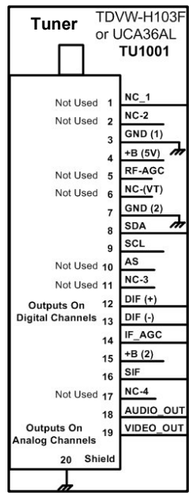
P2

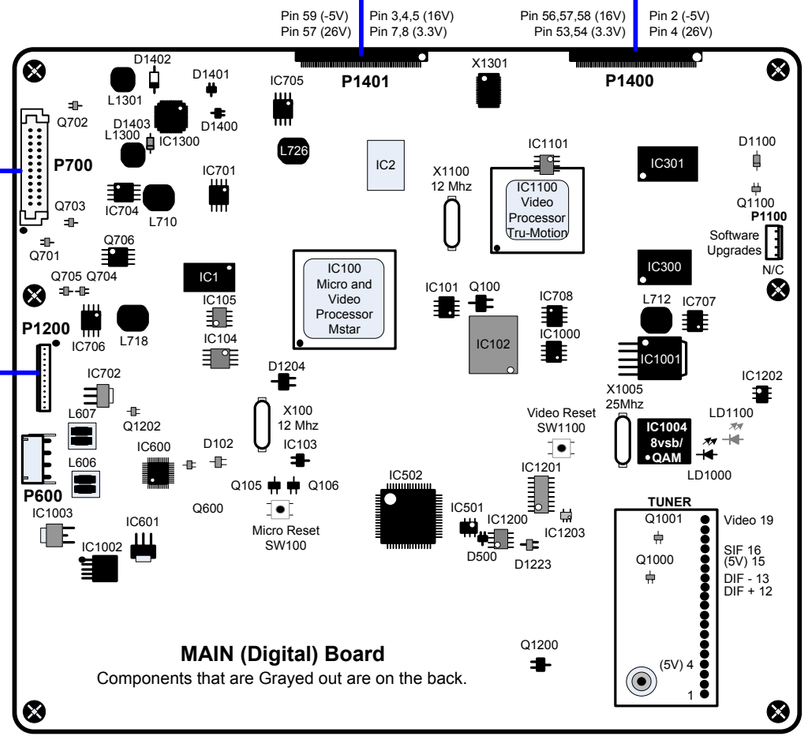
Front PWB Assembly

IR Receiver
Intelligent Sensor

P2 "Front IR / LED PWB to P3000 Keys

Pin	Label	STBY	Run	Diode Check
1	Key1	3.3V	3.3V	Open
2	Gnd	Gnd	Gnd	Gnd
3	Key2	3.3V	3.3V	Open
4	Gnd	Gnd	Gnd	Gnd





Component Voltage on Next Page

42LH40 MAIN (BACK SIDE) SIMICONDUCTORS

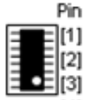
Q1000 Tuner SIF

Pin	
E	2.4V
C	0V
B	3.0V

Q1001 Tuner Video

Pin	analog
E	2.5V
C	0V
B	3.2V

IC1201 RS232



Pin	
[1]	3.3V
[2]	5.6V
[3]	0V
[4]	0V
[5]	5.5V
[6]	5.5V
[7]	5.5V
[8]	0V
[9]	3.3V
[10]	3.26V
[11]	0V
[12]	3.3V
[13]	0V
[14]	5.6V
[15]	Gnd
[16]	3.3V

IC1200 HDMI

Pin	
[1]	Gnd
[2]	Gnd
[3]	Gnd
[4]	Gnd
[5]	4.8V
[6]	4.8V
[7]	4.8V
[8]	4.8V

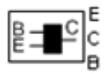
IC1101 Flash

Pin	
[1]	0V
[2]	1V
[3]	3.26V
[4]	Gnd
[5]	0V
[6]	0.1V
[7]	3.26V
[8]	3.26V

IC702 STBY 3.3V

Pin	
[1]	Gnd
[2]	3.3V
[3]	5.1V

Q1202

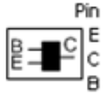


Pin	
E	0.1V
C	0V
B	3.3V

IC1003 9V Reg

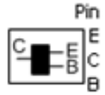
Pin	for Tuner
[1]	12.3V
[2]	8.9V
[3]	Gnd

Q600 Audio Mute



Pin	
E	0.1V
C	3.2V
B	0V

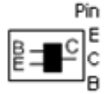
Q701 PWR-On to



Pin	P700 pin 2
E	5.12V
C	4.99V
B	3.07V

Turned on by Q700

Q702 INV-On to

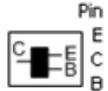


Pin	P700 pin 20
E	0V
C	3.8V
B	0V

Q703 Turns on 5V

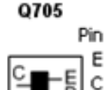
Pin	General Q706
E	0V
C	0V
B	0.62V

Q704 Turns on



Pin	Q705
E	0V
C	0V
B	0.62V

Q705 Turns on LVDS



Pin	12V Q706
E	0V
C	0V
B	0.66V

IC105 HDCP EEPROM

Pin	
[1]	Gnd
[2]	Gnd
[3]	5.05V
[4]	Gnd
[5]	5.05V
[6]	5.05V
[7]	3.25V
[8]	3.25V

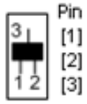
IC104 EEPROM

Pin	
[1]	Gnd
[2]	Gnd
[3]	Gnd
[4]	Gnd
[5]	3.25V
[6]	3.25V
[7]	0V
[8]	3.25V

IC1100 LD1100 Driver

Pin	
G	0.29V
D	2.9V
S	0V

IC107 Power Det



Pin	Reset
[1]	0.0V
[2]	3.3V
[3]	3.2V

D102 Audio Mute

Pin	Routing
A	0V
K	0.1V
A	0V

D1403 LVDS 16V

Pin	Source
A	12.2V
K	16.6V

IC1203 SPDIF Optic

Pin	
[1]	3.25V
[2]	3.24V
[3]	Gnd
[4]	1.6V
[5]	3.25V

D1100 LD1100 (Q1100)

Pin	Gate
A	0V
K	0.33VV

D1223 B+ Routing

Pin	RGB
A	5.1V
K	4.8V
A	0V

42LH40 MAIN (FRONT SIDE) SIMICONDUCTORS

IC701 1.8V DDR

Pin	
[1]	n/c
[2]	3.2V
[3]	3.2V
[4]	n/c
[5]	n/c
[6]	1.8V
[7]	0.79V
[8]	Gnd

IC705 3.3V / 1.26V

Pin	
[1]	0.8V
[2]	Gnd
[3]	5V
[4]	6.12V
[5]	4.99V
[6]	1.3V
[7]	1.3V
[8]	3.19V

IC101 Flash Boot

Pin	Memory
[1]	0V
[2]	3.2V
[3]	2.5V
[4]	Gnd
[5]	0V
[6]	0V
[7]	3.2V
[8]	3.2V

IC103 Reset

Pin	
[1]	Gnd
[2]	0V
[3]	3.3V

Q105 Power On

Pin	Delay
E	Gnd
B	0V
C	1.96V

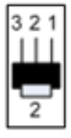
Q106 Reset

Pin	
E	Gnd
B	0V
C	3.3V

IC707 5V EXT

Pin	1.8V MEMC
[1]	0.8V
[2]	Gnd
[3]	4.9V
[4]	6.5V
[5]	4.84V
[6]	1.8V
[7]	1.8V
[8]	4.83V

IC601 1.8V Amp



Pin	
[1]	Gnd
[2]	1.8V
[3]	3.3V

IC1001 3.3V FE

Pin	
[1]	4.9V
[2]	4.9V
[3]	Gnd
[4]	3.36V
[5]	1.19V

IC1000 Flash Boot

Pin	Memory
[1]	0V
[2]	3.36V
[3]	3.36V
[4]	n/c
[5]	n/c
[6]	1.19V
[7]	0.79V
[8]	Gnd

IC704 3.3V Reg

Pin	
[1]	0.79V
[2]	Gnd
[3]	5V
[4]	7.7V
[5]	4.9V
[6]	3.3V
[7]	3.3V
[8]	2.1V

Q706 5V General

Pin	LVDS 12V
[1]	5.1V
[2]	Gnd
[3]	12V
[4]	0.67V
[5]	12V
[6]	12V
[7]	5V
[8]	5V

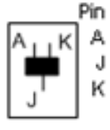
IC708 3.3V Reg

Pin	
[1]	Gnd
[2]	0.79V
[3]	1.26V
[4]	1.26V
[5]	1.8V
[6]	5V
[7]	0V
[8]	5V

D1400 LVDS 16V

Pin	Source
A	14.7V
J	20V
K	27V

D1401 LVDS (-5V)

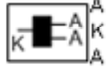


Pin	Source
A	(-5V)
J	(-2.38V)
K	Gnd

D1402 LVDS 3.3V

Pin	Source
A	Gnd
K	3.3V

D1204 LED Moving



Pin	Ft LED
A	0V
K	0.14V
A	0V

LG TRAINING CENTER

42LH40

Direct View LCD

This concludes the 42LH40 training session.

LG

Life's Good